Rat out a rat? A report to Congress sees potential in an anti-spam bounty system. 'Net Buzz provides the details. PAGE 74.

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October 4, 2004 Volume 21, Number 40



IT pros may know more, but so do their kids

Keeping online children in line is a common goal but strategies differ.

■ BY ANN BEDNARZ AND DENISE DUBIE

riting group policies, assigning user privileges and setting restrictive security zones for Internet access keep system management analyst Jason Kennedy plenty busy....And then he goes to work.

As the father of two "frighteningly computer-savvy" children and a member of the IT team at Best Buy Canada in Vancouver, B.C., he has plenty of opportunity at home to use Internetaccess monitoring knowledge and skills.

"To keep them safe, I've See Home, page 16

Tests tell how bad WEP is, Page 47.

802.1X authentication increases WLAN security. Page 48.

WPA is a short-term answer to wireless integrity issues. Page 50.

Emerging 802.11i products secure future for wireless networking. Page 52.

Penetration testing points to problems in WLAN gear. Page 52.

New features help thwart attacks and detect rogue access points. Page 54.

Lab Alliance member Joel Snyder offers tips on how to mix and match WEP, 802.1X, WPA and IPSec. Page 54.

he wireless security

BY JOEL SNYDER AND RODNEY THAYER. **NETWORK WORLD LAB ALLIANCE**

it possible to deploy a secure wireless LAN with technology available today? That question preys on the minds of IT executives who are tempted to deploy enterprise WLANs, but are hesitant because of security concerns. So we assembled 23 wireless products from 17 vendors and ran them through a battery of tests aimed at getting the answer.

We found that Wired Equivalent Privacy (WEP) is very weak, and we don't recommend using it other than in very specialized cases. WEP's successor, Wi-Fi Protected Access (WPA), has flaws but provides solid security when combined with 802.1X authentication and deployed carefully. Ultimately, 802.11i, the standard that replaces WEP and WPA, will provide all the tools needed to protect WLANs.

To their credit, vendors are aggressively shipping products at all prices that support enterprise-class security features. Two-thirds of the products tested support 802.1X, and vendors are moving rapidly to comply with 802.11i standards. See Wireless report, page 47 market into high gear BY PHIL HOCHMUTH

Cisco deals

kick VolP

Cisco has been on a roll in VolP lately — announcing three huge wins with Fortune 50 companies in three months.

Users and analysts cite a convergence of several factors, including the improved ability of Cisco VolP gear to work with legacy PBXs, refinements in telephony features, and the recent adoption of large-bandwidth and QoS-based WAN services in big businesses. Observers also notice a change in approach by the company and its integration part-

ners on how VolP is pitched to and installed in large IT shops.

Winning over skeptics, VolP support builds. Page 22.

The list of companies signing up for vast VolP implementations is impressive. In July, Boeing said it would put in 150,000 Cisco IP phones, and last month Ford announced a 50,000-phone network.Last week,Bank of America topped them all, announcing a 180,000-phone deal with Cisco.

Bank of America said it will start to replace 362 PBXs in more than 5,000 branches next year with Cisco CallManagers --Windows-based servers running Cisco IP PBX software. Electronic Data Systems is providing network integration and support services as well. Bank of America would not comment on the project's details.

"Cisco's [IP telephony] products have matured quite a bit in See Cisco, page 12

JOHN HERSEY

Microsoft leaves colleges vulnerable

BY JOHN FONTANA

Microsoft's licensing policies and legal restrictions that forbid schools from distributing soft-

ware patches to many students are leaving IT executives at universities with potentially thousands of unmanaged desktops that pose a serious security risk.

The issue is that higher-education institutions, and other organizations outside Microsoft and its resellers, don't have the legal right to distribute Windows software to computers they do not own. For most schools, that is a majority of their student desktops (see graphic, page 14).

The result is that universities can't distribute patches for many

Windows-based machines; instead they must rely on students to patch their own systems.

As a result, schools end up with lopsided networks with secure network infrastructure servicing clients not adequately patched and protected.

"We have one set of licensing agreements in place to handle site licensing for faculty, staff and employees, and then we have the infamous black hole for studentowned computers because they are not owned, managed or have

See Education, page 14

DAN VASCONCELLOS

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Dave Chacon

Manager, Technical Services, PING

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NetworkWorld

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CLEAR CHOICE SPECIAL REPORT

Cracking the wireless security code



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Columnists

Telework Beat

City of Austin bounces back

Net.Worker Managing Editor Toni Kistner says after layoffs and restructuring, telework is growing again in the Texas eity.

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Small-Business Tech

Security tips from the Canadian trenches

Columnist James Gaskin gets advice from a security firm on how small businesses should look to save money in the right places.

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Home Base

Web sites that work, Part 2

Columnist Steve Ulfelder looks at design elements that can draw customers in — or frighten them off.

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Seminals and events

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PeopleSoft sacks CEO Conway

PeopleSoft CEO Craig Conway last week was shown the door by the company's board of directors, who immediately replaced him with Dave Duffield, PeopleSoft's founder and chairman. Conway's dismissal was because of a "loss of confidence" in his ability to lead, the company said in a statement. The board of directors also appointed Kevin Parker and Phil Wilmington as co-presidents and Aneel Bhusri as vice chairman of the board. Conway has been embroiled for the past 15 months in Oracle's hostile bid for the company through an all-cash offer to PeopleSoft's shareholders, now valued at \$7.7 billion. In July, Conway blamed PeopleSoft's sagging profits on the struggle with Oracle.

BitDefender takes offense at false ad

■ Romanian anti-virus software firm BitDefender was angered last week by a sponsored link on Google based on searching for the word "BitDefender" that showed McAfee anti-virus advertising urging "Remove BitDefender Virus. Clean your PC if already infected." Quickly responding to BitDefender's charges of "false advertising and libel," McAfee said it was all an innocent mistake borne of human error and made sure the "BitDefender virus" ad was dropped. McAfee said the mistake occurred because an affiliate partner doing the advertising on Google had pulled the name "BitDefender" from McAfee's Virus Information Library, mistaking the name "BitDefender" as the name of a virus rather than the name of the company that had discovered the virus.

Experts report IM-based worm

Security experts have spotted the first attempts to create an Internet worm that propagates using instant messages and exploits a recently disclosed flaw in Microsoft software. Researchers at The SANS Institute's Internet Storm Center have had two reports of users receiving messages on AOL Instant Messenger service that lured them to Web sites containing malicious code. When visiting the Web sites, the malicious code would attempt to install "back-door" software on the user's PC that gives remote attackers total control over the machine. Additionally, messages containing a link to the site would be sent out to all contacts on the victim's instant messenger contacts list. The malicious code is embedded in a JPEG image and exploits a security flaw in the way many Microsoft applications process such images. Microsoft identified and patched the flaw on Sept. 14, but users have complained that patching is onerous because several applications, including Office and Windows, require separate patches.

COMPENDIUM

Sad goodbye to dial-up Martin Geddes reports on a sad byproduct of his move from dial-up to DSL: "Dear

Martin Geddes reports on a sad byproduct of his move from dial-up to DSL: "Dear daughter goes 'la-la' when she hears music, and often bobs up and down in a baby dance. . . . While we had dial-up Internet last week I had the sound enabled on my laptop, and she decided this was a big la-la, and grinned and danced every time. I guess we won't be seeing any more of that. When she's older I'm hoping to introduce her into more melodious harmonics of optical fibre." Hear more sweet music at www.nwfusion.com, DocFinder: 4048.

TheGoodTheBadTheUgly



Taking on Google. With all the success Google has had of late, we wouldn't want the company to start resting on its laurels. That's why it's good to see new competition in the search market. Online search company Vivisimo has developed an engine dubbed Clusty that exploits clustering technology to satisfy user queries.

www.nwfusion.com



Picking on Harvard. Dr. John Halamka, ClO of CareGroup Healthcare System and Harvard Medical School, says the school's network gets attacked about every 7 seconds.



We feel your pain. Those of you for whom HIPAA has become a four-letter word might not be surprised to read this example of the extremes to which such privacy protection has gone: One *Network World* staffer reports having had to sign a HIPAA waiver



StorageTek snaps up Storability

■ StorageTek announced last week that it has acquired Storability, one of the original storage service providers. Storability reorganized in 2002 to sell the storage resource management software it used to manage customer accounts. The company's Global Storage Manager software will be added to StorageTek's information life cycle management software. This is not the first time the two companies have done business. In 2002, StorageTek bought Storability's Storage Operations Center and launched a remote managed service offering. Financial terms were not disclosed.

Red Hat acquires Netscape assets

■ Red Hat has gone scavenging among Netscape's remains, agreeing last week to pay AOL up to \$23 million for the assets of Netscape Communications' Security Solutions unit. The deal brings Red Hat the Netscape Directory Server and Netscape Certificate Management System. Red Hat said it would add the software to its open source product portfolio within the next six to 12 months. The Netscape Directory Server is a Lightweight Directory Access Protocol server used for centrally managing application settings and access controls, while the Certificate Management System handles user authentication. Red Hat expects its Netscape acquisition to be completed in its current quarter, which ends Nov. 30.

IBM still addressing pension dispute

■ IBM said last week it will take a \$320 million charge this quarter to settle some claims and cap its liability on others in a long-running class-action dispute about changes made in the 1990s to its pension plan. A federal judge ruled against IBM in July 2003 on Cooper et al.vs. The IBM Personal Pension Plan and IBM Corp., a case charging that IBM's move from a defined-benefit to a cash-balance pension plan discriminates against older workers because they have less time available before retirement than younger workers to accrue interest on the contributions. The controversial ruling, which contradicted a decision on a similar case by another district court, could have a ripple effect if upheld at the appellate level, as companies try to determine the legality of their retirement benefit plans.

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3Com, Toshiba launch convergence gear

BY PHIL HOCHMUTH

3Com will use the Internet Telephony Expo this week in Los Angeles to launch applications for hardening business VolP networks and expanding user capabilities, while Toshiba will unveil gear to make employees more productive with converged applications.

From 3Com comes an upgrade to its VCX enterprise IP PBX platform, which adds remote-site failover and survivability features in case of network or IP PBX equipment failure, the vendor says. Also, 3Com says its new bundle of convergence applications based on the Session Initiation Protocol (SIP), including unified messaging, presence and multimedia conferencing, can help individual employees work more efficiently.

3Com is launching Version 5.0 of its SIP-based VCX call control software, which runs on its VCX 7000 IP PBX hardware platform. The new software now runs on



Toshiba's new Strata CIX IP PBX supports this SIP-based softphone client, which can run on a laptop or PDA.

the Linux operating system and Sun's Solaris, which gives users the option of using an Intelbased server as an IP PBX, in addition to Sun's proprietary server platform.

VCX 5.0 also includes a feature called Voice Boundary Routing, which lets IP phones distributed across a WAN switch over to a back-up VCX in case of a primary

call server failure. When deployed with VCX 3000 gateways in a branch office, Voice Boundary Routing also lets IP phones in that office make calls through the local public switched telephone network in case the primary WAN link fails.

3Com says Voice Boundary Routing is better than competitive technologies such as Cisco's Survivable Remote Site Telephony, because other VoIP survivability technologies only provide basic local call features to phones when a WAN link goes down. Voice Boundary Routing lets local gateways provide all VCX call features, a local-branch version of voice mail and other applications.

3Com also is introducing its Convergence Application Suite, which includes software modules that allow for SIP-based messaging, presence and conferencing applications for VCX 7000 systems that run the 5.0 software.

Features such as IP voice or videoconferencing with docu-

ment sharing, presence management and instant messaging are accessed through 3Com's new Convergence Center client, which runs on Windows, Macintosh or Linux-based desktops. The client lets users see other employees who are online through a presence directory view. It also includes click-to-dial and dragand-drop call transfer features.

VCX 5.0 was beta-tested at the city of Waukesha, Wis., which used Version 3.1 of VCX to run its voice mail system. The city is migrating from a Centrex telephone system to a VCX-based VolP network that will support more than 500 users and will be managed in-house.

"This system is much easier to work with" in terms of making adds, moves and changes, says Greg Vanness, an IT technician with the city. He says the VCX management interface lets him add or change extension numbers and voice mailboxes in minutes, as opposed to calling the city's Centrex provider and asking for the changes.

Vanness says the city has no current plans to deploy any of the new VCX applications and features announced this week.

The new 3Com VCX 5.0 and conferencing applications range from \$70 to \$200 per user. A VCX 7000 with the 5.0 software costs about \$500 per line, not including IP phone costs. All the 3Com products are available now.

While 3Com goes after large businesses, Toshiba is targeting shops with fewer than 200 users with its latest Strata CIX offering. The box is a dual-processor IP PBX that can handle SIP- and Media Gateway Control Protocol (MGCP)-based IP endpoints, and legacy digital phones that worked with Toshiba's old key telephone systems.

Along with this new platform, Toshiba also is introducing its Strata Media Application Server (MAS). This Windows-based server supports the vendor's new FeatureFlex applications, which include SIP-based presence management and conferencing, and call routing and screening features.

Toshiba makes a line of IP phones that use the MGCP VoIP protocol and support the full set of features and functions on the Strata CIX. Third-party SIP phones will work with the Strata CIX, but more advanced features such as presence and caller ID are not supported. All features are supported on Toshiba digital hand-sets attached to a Strata CIX.

Toshiba also is introducing a softphone client that works with the Strata CIX and runs Strata MAS applications.

The Toshiba Strata CIX costs about \$500 per line not including phones. Pricing was not available for the Strata MAS and FeatureFlex applications. The new Toshiba products are expected to be available in the first quarter of 2005. ■

A CONTRACTOR

Get the inside scoop from Senior Editor Phil Hochmuth on how convergence will affect you with our IT Briefing Webcast.

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DocFinder: 1530

Start-up touts SQL back-up product

■ BY DENI CONNOR

Start-up Idera last week introduced disk-based back-up and recovery software for Microsoft SQL Server that the company says will let users save and retrieve data faster than tape-based approaches.

Called SQLsafe, the software compresses, encrypts and backs up data to disk for recovery by database administrators (DBA) or other IT staff. The product is intended for organizations that have 10 to 100 SQL Server deployments.

With the software, DBAs can perform full, incremental or differential backups of active SQL databases. SQLsafe backs up data to disk about 50% faster and recovers the data 10 times faster than tape, the company says. It complements traditional tape-based software from Veritas Software and Legato Systems.

Because data is written as a disk image rather than tape image, even inexperienced DBAs can recover data if a failure or corruption occurs, ldera says 1T byte of data can be recovered in less than two

PROFILE: **IDERA** Location: Houston **Product:** SQLsafe, back-up, recovery software. Founders: Rick Pleczko, president and CEO; Rod Endo, vice president of operations; and, Mike Clark, vice president of sales and business development. Founded: November 2002 Funding: Austin Ventures, amount not disclosed. **Number of** employees: Fast fact: The company's name is based on the word "idea."

hours. The compression technology that SQLsafe uses can reduce storage costs by as much as 95%, the company says.

Pat Mong, technology analyst at glass manufacturer PPG Industries in Pittsburgh, was looking for software that could compress his backed-up data and save on disk costs when he encountered Idera.

"We primarily chose SQLsafe because of the disk storage usage issue," Mong says.

"A lot of our storage is on an EMC [storage-area network] that

tends to be very expensive. Any way we can reduce the usage of that or not have to ask for more from the SAN staff helps us out from a bottom-line perspective," he says.

Mong has 60 instances of SQL Server running on dual- and quad-processor servers. After testing SQLsafe on these servers, he says he gets 70% or better compression.

SQLsafe is installed on an Intelbased server, where it backs up multiple target SQL Servers. As new SQL Servers are added to the network, SQLsafe discovers them and adds them to the back-up queue. A central repository creates a history of backups and restores. According to Idera, the com-

According to Idera, the company focused on SQL Server because it is the fastest growing relational database. Gartner forecasted in 2003 that SQL Server comprised almost one-fifth of the relational database market, trailing IBM with 36% and Oracle with 33%.

Idera is not without competition. Imceda and BMC Software also focus on SQL Server backups. However, Imceda differs from Idera in that features such as encryption are not a standard part of its software.

ldera also makes migration, configuration management and performance monitoring software specifically for SQL Server.

SQLsafe works with SQL Server v7.0 SP3+, SQL Server 200 Standard Edition, SQL Server 2000 Enterprise Edition, and SQL Server 2000 Desktop Edition SP3a+

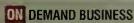
The software is licensed per instance of SQL Server for \$995.■



- 2. Operator measures distance.
- 3. Stats entered into PDA.
- 4. SHOTLink truck transmits data.
- 5. Broadcaster broadcasts a "birdie!"

technology of IBM DB2 integrates and manages information, allowing SHOTLink, the PGA TOUR's ballfollowing technology, to uplink and downlink every shot, run all the numbers and tell the entire story – hole by hole.

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NetworkWorld 10/4/04 News www.nwfusion.com

Entrust targets improper e-mail

BY ELLEN MESSMER

Entrust, best known for its encryption technology, last week introduced an appliance that works alongside e-mail servers to scan for inappropriate content entering or leaving an organization.

The Entelligence Compliance Server is designed to spot content contained in about 300 types of mail-attachment formats and take a variety of steps to flag content that might violate corporate policy.

The Linux-based appliance can notify a security officer about suspect content or block it, or shoot a message back to the sender with a question in it, Entrust says.

Suspect content might pertain to sensitive personal data, financial records or intellectual property. Automating the inspection process is critical to regulatory compliance because "you can't rely on individuals for accessing the content of the e-mail and characterizing it as important," says Entrust CEO Bill Connor.

The Compliance Server also is designed to snag content that might lead to sexual-harassment lawsuits

Entrust has made changes to another product as well. The Entelligence Messaging Server now automatically will encrypt e-mail messages that the Compliance Server flags as "sensitive."

Entrust joins the ranks of other firms, including start-ups such as Vericept and Vontu, as well as security giant McAfee, that have products for identifying content that violates corporate policy.

The Compliance Server costs \$35,000. ■



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Citadel, Preventsys sharpen vulnerability-assessment tools

■ BY ELLEN MESSMER

A pair of vulnerability-assessment and remediation tool vendors are separately upgrading their products so that customers more easily can prioritize which networked systems need to be fixed.

Citadel Security Software says Version 3.5 of its Hercules desktop and server software includes new technology called Asset-Guard that helps companies determine what needs fixing by examining vulnerability-assessment data collected from assorted scanners against an inventory of applications running on the network. Based on pre-written policies, fixes can be prioritized.

Hercules 3.5 aggregates data from scanners such as those from eEye Digital Security, Foundstone and Internet Security Systems.

Other enhancements include the ability to query Hercules' management console for information about what types of

Network protection

Citadel Security Software and Preventsys are upgrading their vulnerability-assessment products to help network managers better prioritize fixes.

Company	Product	What's new	Pricing
Citadel	Hercules 3.5	AssetGuard, which automates inventory management and vulnerability remediation.	\$499 per Windows server, \$999 per Unix server; \$99 per workstation.
Preventsys	Enterprise Security Management	Preemptive Threat Defense, which adds threat prioritization.	\$250,000

computers with specific vulnerabilities are running on a subnet and then scheduling remediation efforts.

Meanwhile, competitor Preventsys has upgraded its Linux-based Enterprise Security Management appliance, which also gathers vulnerability-assessment data from scanners.

New technology called Preemptive Threat Defense takes what's known about the organization's computer assets and risks and compares that against ongo-

Since January,

SurfControl has

witnessed a

growth in the number

of phishing attacks on

the mailboxes its

product protects,

company officials say.

ing attack information from intrusion-detection systems.

"It can now look at the real-time flow of threat data, and then dispatch tickets out of a workflow system based on rules, explaining why it should be changed," says Preventsys CEO Tom Rowley.

Mark Byford, manager of technical information systems at St. John Health System, says he primarily uses Preventsys gear to automate the consolidation of information from scanners, including the open source Nessus

system. The data is used to determine the most critical vulnerabilities on the Tulsa, Okla., outfit's network of 130 servers and 3,000 desktops.

"Before, our reporting was manual," Byford says. "But we need to have reports we can show," especially because the Health Insurance Portability and Accountability Act now has established requirements for protecting patient records and for the security and auditing of systems.

SurfControl turns a trick on phishers

■ BY CARA GARRETSON

In response to the growing threat that phishing poses to e-mail users, Surf-Control plans to upgrade its e-mail filter to catch these attacks, and flag more spam and other abuses.

SurfControl's E-mail Filter 5.0, slated for release next week, has been designed to trap phishing attacks, in which e-mail users receive messages that appear to

come from a bank or retailer asking them to divulge personal or financial information and end up victims of identity theft.

E-mail Filter, which can be installed at an organization's mail server or gateway, has been upgraded to include the company's URL Category Database. This database lists known phishing sites and sites that disseminate spyware and other malicious code, says Paris Trudeau, SurfControl's senior product marketing manager.

By including this database, which also is part of SurfControl's Web filter product, the upgraded e-mail filter can scan incoming messages for these URLs and delete them or store them in a quarantine folder, depending on how an organization configures the filter, Trudeau says. SurfControl's threat command centers find these malicious Web sites by searching for URLs embedded in messages that land in its network of honeypot e-mail accounts — phony accounts set up to attract unwanted e-mail — and by using artificial intelligence. Whenever such URLs are found, SurfControl pushes software updates to its customers so the e-mail filter can trap messages that

include these links, Trudeau adds.

In addition to Version 5.0's ability to scan incoming e-mail in a variety of foreign languages, one beta tester says he is impressed with the filter's protection from denial-of-service (DoS) attacks. Version 5.0 lets users set limits for maximum number of connections coming from the same IP address in a certain time frame, for example.

"Although we use the [real-time black hole list] option, the transient nature of the beast means that we still see mass mailing attempts from time to time," says Ed Concannon, network analyst with Computer Sales International, a technology leasing company. "The [DoS] option will let us block an address for a pre-determined amount of time, which means

less administration on my part."

Version 5.0 also features enhancements to the company's spam-detection tools. These include digital fingerprints that classify spam into 17 categories, making incoming unwanted messages easier to identify; heuristics that look for telltale signs of spam in a message's content; LexiRules, which use advanced Boolean techniques to develop spam-catching rules; and an update to the company's neural network technique that weeds out spam related to gambling and adult content.

E-mail Filter 5.0 ranges in price depending on the size of an organization; a company with 500 users would pay \$19 per user. The Anti-Spam Agent and URL Category List are sold as a combined optional plug-in, which is free for the first year and costs \$9.50 per user, per year, starting the second year.

SurfControl competes with anti-spam filter makers such as Symantec and MailFrontier, and with e-mail security appliance vendors including IronPort Systems and Cipher-Trust

This week SurfControl also plans to release an e-mail gateway appliance called RiskFilter, a mail transfer agent that filters spam, viruses and other security threats.

RiskFilter is priced starting at \$26,000 for up to 2,000 users and \$49,000 for up to 5,000 users, plus an annual subscription fee of 50% of the initial charge. ■

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Cisco

continued from page 1

the years we've been studying them," says Cliff Naughton, director of network services for Boeing's Shared Services Group. Cisco Call-Managers have been running in various pilot deployments throughout Boeing's network since 1999, when Cisco first entered the market. Past problems with the technology included scaling -- such as problems in supporting more than 100,000 phone extensions — and missing features that were common on many traditional PBX products, he

"We've worked through those situations, and right now we're feeling very confident about the technology," Naughton says.

Network upgrades in WANs by companies such as Boeing and Bank of America also have paved the way for the IP telephony services.

Boeing recently switched from an ATM and frame relay WAN to a Multi-protocol Label Switching (MPLS)-based network managed by Sprint.

"Right now we've got an any-toany model," Naughton says. This lets any location in the network communicate over IP through the MPLS mesh service rather than the hub-and-spoke topology of the past frame relay network."This network has QoS, and we've al-

Cisco VolP deal makers and breakers

Cisco is on a roll with some recent high-profile IP telephony customer wins, but the vendor also has hit bumps along the way with other customers:

September 2004: In Cisco's largest IP telephony deal yet, the Bank of America said it will replace 362 PBXs in more than 5,000 offices with Cisco gear and put Cisco IP phones on 180,000 employees' desks.

September 2004: Ford Motor and SBC say they will deploy a Ciscobased IP telephony network for 50,000 workers.

September 2004: The state of Alaska terminates a \$100 million contract with carrier Alaska Communications Systems to deploy 20,000 Cisco IP phones to nearly all state facilities.

August 2004: The city of San Jose is forced to cancel plans for a Cisco IP telephony rollout in its new city hall after auditors discovered the project's bidding process unfairly favored Cisco. The city's CIO resigned and the project was put out for bid again as a result.

July 2004: Boeing says it will put in 150,000 Cisco IP phones over the next three years.

June 2003: Merrill Lynch announces plans to pull out thousands of Cisco IP phones and IP PBXs in favor of IP and TDM-based gear from Avaya. Cisco was removed because its handsets only supported IP.

ready moved a lot of internal long-distance traffic onto it," he says."It will also make it that much easier to connect sites as we [install] IP telephony."

As for Bank of America, it recently replaced its ATM backbone and T-1 and T-3 branch connections with a nationwide optical network. It now has 4,200 offices connected to an optical backbone based on Cisco ONS 15454 switches.

According to printed statements by Bank of America IT executives, the optical backbone is doing more than just leading its VolP rollout. It also has been integral in helping the bank take on the enormous additional IT burden from its recent acquisition of Fleet

Legacy integration

A shift in convergence strategy and message by Cisco might be another reason large businesses are adopting the technology. While most large companies want a strategy to migrate PBXs from TDM to IP over time, "that was not the message Cisco had in the past," says Brian Riggs, an analyst with Current Analysis. "It was more like, rip out your PBX and put in CallManager."

He says Cisco's approach to customers now is to work Call-Managers into telephony networks alongside the big-iron PBXs that eventually will be retired.

Cisco also made changes to its CallManager software earlier this year that make it easier for Cisco IP PBXs to run parallel to TDMbased PBX systems, Riggs says. Previous CallManager versions offered limited support for a protocol called Q Signaling (QSIG), a standard for PBX signaling. But CallManager 4.0 expanded this greatly, letting CallManagers interoperate with a larger number of PBXs and support more features, such as caller ID and conferencing, across the platforms.

"Cisco's story now is that they will use QSIG, analog gateways and whatever technologies they

can to help customers migrate more slowly," Riggs says.

This legacy integration will be important for the likes of Bank of America and Boeing, which have hundreds of old PBXs that must stay in service as the new gear is installed.

"This is not a big bang or forklift type of approach," Boeing's Naughton says. "We're expecting this to be a five- to seven-year migration."

Boeing uses more than 125 PBXs throughout its network. In its large manufacturing campuses and headquarters, carrier-class Class 5 phone switches from Lucent also are running.

"We've triaged these [PBXs and switches] into old systems, really old systems, and systems we absolutely have to do something about," Naughton says. "We're also being opportunistic about putting in new systems."

That means any time a Boeing group changes facilities or moves into a new building, a Cisco IP PBX and phones will follow.

Hitting home with VolP

One of the biggest challenges for large companies moving to IP telephony will be migrating very large campuses or headquarter sites. Typically, large IP telephony installations have involved replacing a few hundred or thousand IP phones at remote sites tied together via a WAN. The largest single-site and campus deployments of a Cisco IP network today is still Cisco's 40,000-seat headquarter campus in San Jose.

Boeing says it won't be turning on CallManagers on that scale for some time.

"We have not yet turned over any of our carrier switches in our large campuses," Naughton says, and he is in no rush to make that change."The way we hope to do this in larger sites is to work from the edge in."

This means continuing to convert branches and remote offices to IP telephony and saving for last the big changeovers in the company's Chicago headquarters and Seattle manufacturing campuses.

Changes in Cisco's sales strategy also might help the company get the larger deals. Riggs says some of the perception in the industry that Cisco IP telephony gear was technically lacking might have been because of poorly installed systems by the flood of Cisco partners authorized to resell the telephony gear. Two years ago, Cisco revamped its training and certification requirements for channel partners and integrators to install

Cisco IP telephony products.

"This got rid of some poorperforming systems integration companies," Riggs says. "What was left was a smaller but stronger set of partners."

Competition on notice

While Cisco's Boeing, Ford and Bank of America deals certainly have put telephony competitors on alert, those vendors say they are not worried about these recent gains.

"Obviously one hates to see any big deal go to the other guy," says Alex Pierson, general manager of enterprise business networks for

Pierson says Nortel is evolving its IP telephony strategy to meet the needs of larger companies that might be getting closer to taking the IP plunge.

"Certainly, our initial strategy was to protect our installed base," of PBX users, he says. Now, the company is more aggressively marketing all-IP products. It also recently introduced an upgrade to its Succession Communications Server IP PBX, letting it scale to 200,000 IP endpoints.

Pierson says Nortel's customers are signing on to this, citing recent hybrid IP/TDM PBX deals with the state of Virginia and the U.S. Department of Defense.

Another competitor says there is still something to be said for having the ability to blend TDM and IP on one phone switch. According to Jorge Blanco, Avaya's vice president of product marketing, the ability of his company's products to support IP and legacy digital sets is still appealing to many customers.

It's something Cisco still can't do, which led to a large Avaya win at Merrill Lynch last year. The brokerage giant decided to replace the Cisco VolP system it installed in 2001 with a mix of Avaya IP and digital PBX phones. Merrill Lynch said the pullback was because of security concerns about having all its voice and data applications running on IP.

Blanco says this hybrid approach "is much less disruptive than having to visit every desktop" and switch the phone from a digital set to IP.

"This also lets you get to convergence quicker without having to wait for a vendor to reinvent features and functionality that have been in place for years" on existing PBX products, he says.■



Vendors tout SSL remote-access gear

BY TIM GREENE

Three Secure Sockets Layer remote-access vendors are upgrading their equipment, one with software enhancements and two with new hardware.

Aventail is upgrading its SSL remote-access gear to give end users varying levels of access to corporate networks, depending on the security rating of the computer they use.

Part of Aventail's ASAP 8.0 software release, this feature checks the status of the operating system on the remote machine before it authenticates the user, and based on the information it receives assigns the machine to a security zone. If the operating system is unpatched, users might get very limited access. If it is in compliance, users might get fuller access by being assigned to different zones.

These zones are defined by sets of security parameters including what subset of corporate resources is available to users assigned to the zone. These parameters also can include whether the remote machine can connect via browser only browser aided by a Java applet or using a full remote-access client. The software can further determine how data sent during a remote-access session is protected. This can be done by purging caches when the session ends, or creating a secure desktop or "sandbox" that is destroyed when the user logs off, leaving no history

Competitor Juniper is trying to offer this functionality by publishing

See SSL, page 72



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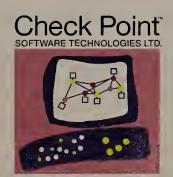
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AT&T expands network globally

BY DENISE PAPPALARDO

AT&T last week announced network expansion initiatives that include extending the reach of its Multi-protocol Label Switching network in Asia and South America, boosting IP capacity in the northwest U.S., increasing the reach of remote access services and deploying four new data centers overseas.

"We re-prioritized our network investment from a global perspective," says Eric Shepcaro, AT&T's vice president of business strategy and development. The re-prioritization is based on AT&T's strategy of being focused on business customer's needs, he says.

AT&T's MPLS network now reaches 50 countries and includes additional nodes in China and India.

"AT&T has always had a presence in China," says Bryan Van Dussen, director of telecommunications research at The Yankee Group. "But China is vitally important when you consider the country's population and potential for growth." Network expansion in India is equally important for AT&T,Van Dussen says, especially when you consider how infrequently U.S.-based carriers are investing in networks overseas.

AT&T network investment

Here's a quick look at the carrier's recent network expansion.

- Extending MPLS network into Thailand and Costa Rica.
- Adding MPLS nodes in China and India.
- Offering mobile disaster recovery in Europe.
- Deploying OC-768 fibers between Seattle and San Francisco.
- Offering Wi-Fi support through 4,000 hot spots.
- Metropolitan Ethernet at 1,200 buildings around the world.
- DSL support at 8,000 central offices.

AT&T also announced recently that it's expanding its MPLS network in Mexico through a partnership with Alestra, a telecom company that is 49% owned by AT&T and 51% owned by a conglomerate in Mexico.

The carrier also has beefed up its hosting presence overseas with a new data center in London and another in Tokyo. AT&T now has two data centers in each city. And for the first time AT&T is offering hosting services in Paris and Frankfurt, Germany, with a data center in each city.

Customers in Europe will have AT&T's mobile Network Disaster Recovery services available when disasters strike. Until now, AT&T only had its fleet of trucks and trailers ready to roll at a moment's notice in the U.S. to hurricane or flood sites to restore network services.

AT&T also has teamed with multiple service providers to expand the reach of its metropolitan and remote access services, including Ethernet,Wi-Fi and DSL. The carrier has increased the number of buildings it can reach with metropolitan Ethernet services from 600 in the U.S. to 1,200 around the world through an agreement with service provider STSN. It has increased the number of Wi-Fi hot spots available to AT&T customers from 2,900 to 4,000 through its agreement with STSN.

AT&T has Ethernet and Wi-Fi roaming agreements with GoRemote (formerly Gric Communications). AT&T now supports DSL services from 8,000 central office switch sites, compared with 6,300 earlier this year. The carrier has increased its DSL reach through an agreement with New Edge Networks. It also works with Covad Communications to offer DSL services.

The carrier recently deployed Siemens Dense Wavelength Division Multiplexing gear to support an OC-768 fiber between San Francisco and Seattle. AT&T says the link supports up to 40G bit/sec on one fiber strand.

AT&T's OC-768 deployment "validates that traffic continues to grow," Van Dussen says. The area between San Francisco and Seattle is one of the largest for Internet growth. ■

Education

continued from page 1

site-licensed software installed," says Rodney Petersen, coordinator for the Security Task Force at Educause, a nonprofit association of 1,900 schools that promotes IT in higher education.

Microsoft offers licensing options for student machines but the cost is prohibitive, with requirements to cover entire departments or entire campuses. Few schools subscribe, according to Educause.

The problem joins a list of growing Windows-patching challenges in specific industries. In July, *Network World* uncovered potentially life-threatening patch problems that plague the healthcare industry (www.nwfusion.com, DocFinder: 4047).

Educause's Security Task Force is encouraging Microsoft to adapt to the unique relationship schools have with students through licensing revisions or modifications to Microsoft's software distribution technology.

The higher-education community has solutions in mind but is skeptical of Microsoft, which has promised a long-term remedy but has yet to provide details.

Some say the solution should combine flexibility in both delivering patches to machines not owned by the university and how it can be done.

"Educational institutions are looking for more flexibility to secure the entire network," Petersen says. "They don't want to rely on students getting a CD or going to an update server."

Many users are trying workarounds using methods that don't scale, including Active X controls for rudimentary patch assessments, or don't work well. Products that perform security checks before allowing access typically require client-side code, which is impossible to load on student machines new to campus. Remote security scans also are difficult because many students use personal firewalls.

What complicates the matter further is that Microsoft is legally required to track software it distributes in case of a recall. If

Correction

The story "Cisco offerings target small firms" (Sept. 20, page 32) incorrectly stated that the Catalyst 4948 LAN switch supports power over Ethernet.

Student computing

A September report by nonprofit association Educause shows that a large percentage of students during the 2003 school year were using their own computer, desktops that universities are unable to manage.

Percentage of students using their own computers*



*Data represents those schools for which data was available for both years.

schools re-distributed patches they would have to log and track each user, including those that leave the university system.

Microsoft also closely guards distribution to secure the integrity of the software.

Company officials said in a statement that they are "working closely with their higher-education customers on this and exploring options to meet the unique needs of the campus computing environment."

The situation has been building over the past 12 months of worm and virus outbreaks and came to a head in August when Microsoft released Windows XP Service Pack 2 (SP2).

In response, Microsoft bent its own rules to foster installation of XP SP2 by creating the Higher Education Voluntary Distribution Program, which provided the SP2 code via an allotment of free CDs for universities to distribute to students. The program ends Nov. 30.

However, schools want a longterm plan to easily and affordably distribute patches to students.

"The current license model is aggressive for campuses," says Jack Suess, ClO at the University of Maryland, Baltimore County,

■ Take part in our upcoming virtual showdown on patch management. PAGE 44.

and co-chair of the Educause Security Task Force. "We have to track who gets each CD, and we need a method of recall. That is tough for institutions to do."

That's especially true given Microsoft's monthly patch release and random critical updates.

Licensing restrictions also prohibits computers not owned by the school from connecting to a school's Software Update Services (SUS) server, which is Microsoft software that the schools deploy internally to distribute patches. The same is true for Microsoft's Systems Management Server.

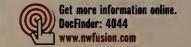
Microsoft does not provide tools to authenticate access to SUS servers, which would permit auditing of downloads, Suess says. Schools also would have to validate that only users with licensed software download patches and would be liable for any breaches.

"We need simple things like getting standard license agreements that are readily adoptable by universities," says Suess, who adds that the task force has not yet developed concrete proposals to present to Microsoft. "Other users, governments and corporations expect us to manage these students who are using our IP addresses. There is a level of accountability."

The Security Task Force has been working with Microsoft, which hosted a Webinar in August to answer questions and appointed a technical staff member to field questions on Educause's security discussion list.

Microsoft currently has a few licensing programs for schools, including the Campus Agreement with a Student Option, which provides licensed software for students. A license to provide 500 students with a desktop operating system, Office and a client access license for Windows Server and SQL Server Standard Edition costs \$13,500. However, universities must license a minimum of 300 students and license by entire departments or the entire campus; they cannot license random

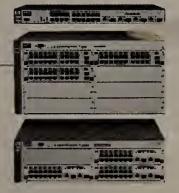
Microsoft has the MSDN Academic Alliance membership program for departments that teach and use computers. The \$800 per department fee includes access to software for instruction only and an electronic software distribution system run by e-academy, Inc.





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Home

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taken a series of measures with regard to their Internet use," he says. "As they get older and need to do more online, we'll have to manage this in a more efficient manner."

In some ways, network and other IT professionals who are parents have an edge over nontechie moms and dads when it comes Internet access and children. Techie parents get exposure to the latest filtering and security techniques and issues, and give more thought in the workplace to issues such as Web access and instant-messaging privileges. Not that all the tech knowledge in the world makes up for lack of common sense and good people skills.

No monitoring tools

IS Director Ross McKenzie says he favors controlled exposure to the Internet for his 10- and 12year-old sons: He doesn't like automated monitoring tools, but manually checks history files and sometimes peeks at incoming or outgoing messages.

"Monitoring tools send the wrong message to the kids," says McKenzie, who works at Johns Hopkins Bloomberg School of Public Health in Baltimore."1 would rather teach them to use the Internet, e-mail and chat responsibly, and teach them what is right and wrong."

He runs his childrens' e-mail accounts through an Exchange server at his house, and the children know he administers it and can access it any time. One time McKenzie found that a friend of one of his son's had typed in the URL of a porn site, leading him to confront the children and alert the friend's parents.

Brian Jones, network engineering and operations manager at Virginia Polytechnic Institute and State University in Blacksburg, depends on technology and training to keep his 12- and 15year-old boys from roaming to unsavory areas online.

"I don't let my children install any software on the computer without supervision. I also don't let them join anything or fill out any forms," Jones says. "It is a good idea to create user accounts for your children to limit their administrative privileges on the computer — to protect the computer and to keep track of who is doing what."

Jones uses software to block popups, watch for spyware and

Safety begins in the home

Parents looking to temper Internet freedom with safeguards for their kids should consider the following home use practices.

Role-based usage: Define how you'd like your children to use the computer. Create user privileges and restrict children's administrator roles on the PC to ensure they cannot change policies or download software.

In plain view: Locate the computer with Internet access in a common room — such as the home office or library — not in the child's bedroom.

Accentuate the positive: Set a list of acceptable Internet sites in browsers, teaching children the benefits of online information and research.

Make kids be themselves: Don't allow them to take on aliases in their IM account or group chats.

Limit information sharing: Tell your children not to fill out any forms on Web sites requiring personal information and to stop any online conversations with individuals requesting personal details.

Monitor, monitor, monitor: Even with safeguards in place, incidents might occur. Monitor your system for adware and spyware; your browser's history file; the computer and firewall cache; and e-mail or IM chats to determine if your child is visiting sites or talking to strangers online. Then talk to your children about it.

protect his home network against viruses. He doesn't use monitoring software, mostly because he'd rather his sons follow his policies than those of the software.

Others advocate more of a hands-off style.

Richard Leland, director of business systems at a legislative branch agency in Washington D.C., safeguards his home PC with a virus-protection service and a firewall, but doesn't use Web site monitoring or blocking tools to keep his 17-year-old daughter in line.

"My daughter has had access to a computer her entire life and has been raised to understand what she should and should not do in this environment. I trust her judgments," Leland says.

But such an approach might not work for every family."Some children may need the more structured controls offered by filtering products," he says.

Daniel Basse, director of IS at Ridge Vineyards in Cupertino, Calif., recommends parents use Internet monitoring tools and a keystroke logger.

Having a monitoring tool that can be updated automatically is important, Basse says. "There is no way a parent would know what they need to block, nor where to find it, so these types of software and services provide the research to assist parents."

In the hands of unsavory people, keystroke loggers can be

used to capture passwords or credit card numbers. In parents' hands, they can be used to see if inappropriate conversations are occurring, Basse says. Parents also can use keystroke loggers to see if a child has tried to circumvent parental controls, he adds.

Sheryl Glore, chief of implementation and standards for the Air Force at Patrick Air Force Base in Florida, says her 15-yearold daughter loses Internet privileges for swearing while instant messaging.

Glore watches history logs and temporary Internet files. Instead of installing monitoring software, she checks her daughter's buddy list, configured her e-mail account to accept messages only from known addresses and restricts her administrative rights on the PC.

"I don't use monitoring tools because there are so many choices; how do I know what is best for my circumstance?" she

Priscilla Milam's story is similar. She limits her daughter's time online, keeps the PC in public view, and checks log files and browser cache files. But she also is aware that her 17-yearold daughter might be old enough to work around technology controls. Milam, the dean of technology at Kingwood College in Texas, talks to her daughter about meeting people on the Internet and exchanging information with them.

"I treat the threat of the Internet as I do teenage drinking and drugs," she says. "I make a point to share news stories relating to Internet incidents involving children whenever possible to make the threat

The risks are real, according to the FBI, which says the Internet has dramatically increased sex offenders' access to children. lt manages a multi-agency effort called the Innocent Images National Initiative (IINI) — to combat the proliferation of online child pornography and sexual exploitation. There's no shortage of work for the team: The number of IINI cases leaped from 113 in 1996 to 2.370 in 2002.

Another approach

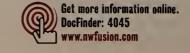
Numbers like that have encouraged some techie parents to take a conservative approach to Internet access at home. Wayne Roberts, a network engineer at Emery School District in Huntington, Utah, doesn't allow it.

"I have children, and have very strong feelings about Internet browsing," says Roberts, the father of children aged 10,8,6 and 4."I don't have an Internet connection at my home and quite possibly never will."

"When my children need information and don't have time to find it at school, I bring them to my office, where they have a fast connection, and I monitor them," he says. "Also, there's a firewall and strong filter where they won't accidentally find something I don't want them to see."

Meanwhile, the trend among non-techie parents is to use the parental controls software that comes bundled with ISP services, says Tim Lordan, staff director of the nonprofit Internet Education Foundation in Washington, D.C. The foundation maintains a database of parental control tools and related content through its GetNetWise project.

If monitoring and blocking tools are not your style, GetNet-Wise includes non-technical resources as well, such as parent-child contracts that establish rules for computer use. Having a contract is a way to broach the subject of appropriate Internet usage, he says. "If nothing else, it starts the conversation."



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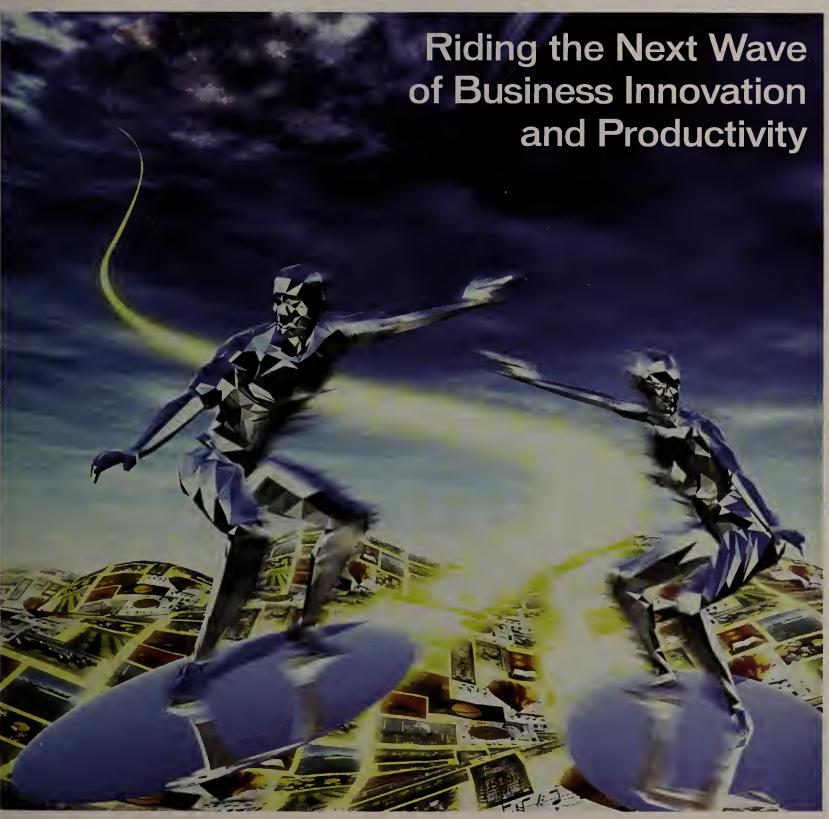
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A Supplement to IDG Publications



Dynamic IT



IDC Outlook on IT's Contribution to Business Productivity



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Dynamic IT

Riding the Next Wave of Business Innovation and Productivity

Over the past two decades, \$10 trillion in information technology investment has unleashed a wave of business innovation – in everything from the way companies deal with customers and suppliers to the way they conduct meetings, count paper clips and send correspondence. For years there have been questions over the degree to which IT actually increases business productivity, but since the mid-1990s it's been clear that the contribution is substantial. There are now enough studies to fill a bookcase on the impact of IT on both enterprise and country-level productivity.

Figure 1 actually shows the correspondence between U.S. productivity growth and IT investment as measured by the U.S. government – with the growth in IT investment shifted by three years on the assumption that it takes some time for the investments to pay off.

As you can see, in almost every instance where IT investment has gone up (or down), productivity growth three years down the line has followed. The data does not prove a cause and effect, but the correspondence is clear. Increased

By John Gantz, Chief Research Officer, IDC, and Frank Gens, Senior Vice-President, IDC

IT spending and increased productivity go hand in hand.

Of course, this is a picture of the macrocosm. In the microcosm, we have plenty of other evidence that IT has generated improved corporate performance.

In spring 2004, IDC surveyed 500 CEOs and CIOs on the relationship between IT investment and sales performance. That study found

that companies with high sales performance are also likely to be leaders in IT. Additionally, these businesses tend to increase IT spending faster than the market average, while keeping an eagle eye on costs. Moreover, these sales and technology leaders concentrate their investment in areas that give them more insight into their customers.

Translated to the enterprise environment, this means that companies that increase investment in IT should see an increase in productivity and performance. But this is only

true if they invest in the right technology at the right time; manage their investment and implementation well; and manage their non-IT investment to maximize their IT investment.

And it goes without saying that companies that do increase productivity through IT do not do so in a vacuum. Their peers and competitors will be investing in IT as well. You can't just improve a business process and stop there. Innovation needs to be ongoing.

To sustain this innovation – continually improving business processes while simultaneously engineering out costs – IDC envisions a new generation of information technology that we call "dynamic IT."

The concept is simple. Dynamic IT is about creating a high-performance IT capability that can support the rapid pace of business change. The dynamic IT framework untangles the patchwork of isolated, under-leveraged infrastructure, data and applications that today are common in many companies. It turns hard-wired point solutions into shared services.

The goal of dynamic IT is not to make an enterprise merely a little more responsive to changing business needs, but rather an order of magnitude more responsive. It's a lofty goal, to be sure, but as we will show, many of the technologies and business practices required to meet it are already here.

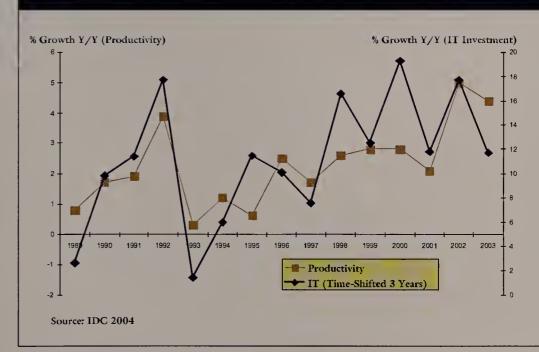
Why dynamic IT?

In a controversial article published in the May 2003 "Harvard Business Review," Nicholas Carr argued that IT is now a commodity that no longer offers sustainable competitive advantage. Too many companies have access to the same packaged solutions for any IT-driven advantage to last for long. IT, Carr contends, is like electricity or steel – critical to a company but not a source of differentiation. Business and IT executives

their involvement with IT to increase over the next year (none thought it would decrease), and over 50% say their company should be more aggressive in using IT to attack business problems.

In another survey of large U.S. enterprises, top business and IT executives told IDC the biggest problems they face aren't technological in nature. Rather, the top challenges are related to cutting waste and inefficiency in the company;

Figure 1. Growth in U.S. productivity follows growth in IT investment



have been arguing since the article appeared with Carr's basic premise, but they agree that IT is critical to business (Figure 2).

One sign of the importance of IT is the amount of time line-of-business executives and CEOs spend on IT issues: 20%! This includes planning, evaluating, reviewing and testing. Over 25% of respondents expect

reorganizing to better face the market; and doing a better job of dealing with customers, partners and suppliers.

Can IT help address these business problems? How?

This is where dynamic IT comes in. Even if author Nicholas Carr is wrong, it's clear that the days of long-lasting market stability and competitive advantage are over (if they ever existed at all). Management priorities are increasingly driven by the need to respond quickly to fastmoving market dynamics. A sharp rise in oil prices. The demise of a key supplier. An acquisition. A new law or court decision. A dock strike. Offshore competitors.

Indeed, the only way to gain sustainable competitive advantage is to continually establish and re-establish temporary competitive advantage.

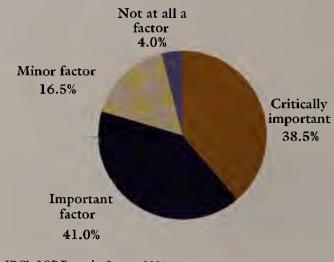
ment to the shopping patterns found in individual stores. And why do you think Wal-Mart is pushing radio frequency identification (RFID) so heavily? It's all in the quest to keep store shelves stocked at all times.

But using IT to support such realtime adjustments to changing business conditions is no easy task. While organizations face growing pressure to become more dynamic, IT has historically responded slowly to business change. In many industries, the dancy; and improving the adaptability of business operations with a layered, service-oriented IT environment that allows changes to be made in individual parts of a business solution without impacting the rest of the solution.

Adding to the challenge of building dynamic IT is business executives' perception that IT costs are too high and IT asset utilization too low. As a result of this perception, much of the build-out of dynamic IT will have to be self-funded.

Figure 2. Over 79% of business executives say IT is critical or important

How much of a factor is IT operations performance to your business success?



Source: IDC's LOB Executive Survey, 2004

That's why companies as diverse as 3M and Best Buy are continually searching for IT-borne advantages.

3M has a "2X/3X initiative" intended to double the number of products it creates every year – a task that leans heavily on IT. Best Buy has a "customer-centric stores initiative" that seeks to tailor store replenish-

speed of business cycles outstrips the speed at which IT can react.

Two key goals of replacing the numerous hard-wired connections among dedicated IT resources with many more "virtual" connections among shared resources are improving operational efficiency through resource sharing and reduced redun-

The path to dynamic IT

IDC sees the transformation to dynamic IT unfolding on two parallel paths. First, there's business strategy and execution. To respond faster to changing business needs, dynamic IT needs to improve the organization's ability to develop and integrate applications, data and workflow, as well as to monitor business performance and speed operational adjustment to market changes.

The second path is IT operations management and automation. Dynamic IT needs to deliver on higher service-level performance and lower IT infrastructure costs. It must also link, monitor and manage all IT operational elements in the enterprise. The latter imperative includes automating labor-intensive tasks; developing end-to-end management capabilities; reducing hard-wired inflexibility through virtualization; and adopting flexible sourcing and



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The real payoff will come when the transformations down these two paths are intimately linked. The left side of Figure 3 illustrates how dynamic IT delivers value, but the right side shows where the real leverage comes from.

In most enterprises, the two domains (business strategy execution and IT operations and management) have historically been segregated. But for a company to become a truly dynamic enterprise, it's vital that these barriers be breached. Business executives need to understand how IT can be applied to improve their

employed in an orchestrated effort to help create this linkage.

Hinge technologies

What are the critical building blocks that organizations need to create a dynamic IT capability? IDC has identified 12 specific technologies, six for each major component.

We'll start with the "business strategy automation and execution" component.

Business monitoring and analytics: measuring business performance to trigger dynamic change. Think management dashboards, portals, real-time analytics.

ness. Business process-focused solutions using reusable application logic, business rules and workflow are the order of the day – not large, inflexible packaged applications.

Information and data services: defining and accessing relevant information as needed.

Technologies that support integration, transformation and quality of information in a time-sensitive manner are critical. This means advances in modeling and meta-data management; better contextual analysis of data; the combination of structured and unstructured data; advanced search and discovery; and federated data management.

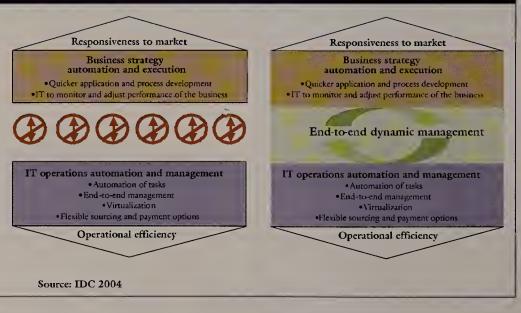
Integration, event and deployment services: connecting, processing and managing end-to-end messages, events, information and application logic. This technology supports concurrent, asynchronous and synchronous message streams with contextual and state awareness. Discrete technologies include agents and brokers; application servers for service provisioning; and integration tools that, to take one example, can help companies gain a single view of their customers.

interaction in the business process.

These technologies coordinate resources for interaction, especially those enabling workforce productivity and linking the organization to the outside world. To date, many of

Collaboration and communica-

Figure 3. Dynamic IT delivers value in both the business realm and the IT operational realm. The real payoff comes when the two are interconnected.



operations. IT personnel need to have a clear view of the entire IT value chain and how it supports business processes.

These may seem like pie-in-thesky goals, but there is no doubt that existing technologies can be Think store reporting systems that automatically trigger supplier shipments of hot selling items.

Business process management and applications automation: quickly configuring applications and workflow to support the busi-

these technologies have led to applications that remain isolated from the automated functions of a business.

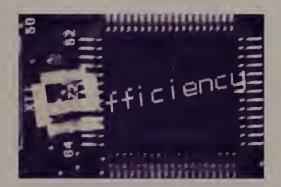
That must change.

Access and interface services:
providing navigation and interactive experience inside and outside the enterprise. Given the growing complexity and tremendous volume of systems and sources in today's computing environments, navigating and accessing them in the context of role and function has become increasingly difficult. Consolidating sign-on and standardizing procedures is just a first step in addressing the user experience.

Now we'll note technologies supporting the "IT operations management and automation" component.

Service-level management and automation: triggering deployment of IT resources. These include the emerging automation or orchestration engines that trigger the provisioning of enterprise systems from virtual resource pools. Automated provisioning is what finally achieves "on-demand" or "utility" IT. This requires the setting of service level agreements and setting priorities for different workloads and services.

Metering, measurement and chargeback: charging for IT use by business group or activity. This area is focused on leveraging metering metrics for usage measurement and billing to departments and customers that use a shared resource



pool governed by service-level management and automation.

Security: protecting the entire IT environment. Security runs through all layers of dynamic IT and ensures privacy between customers and departments in a shared-resource environment. Its many facets include authorization, access, protection and managing identity throughout and beyond the enterprise.

Infrastructure virtualization: creating efficient virtual resource pools. The partitioning of servers is the most commonly used aspect of virtualization today; the practice must be extended and refined so that all enterprise systems can be allocated and reallocated to different workloads depending on service-level agreements and priorities.

Infrastructure provisioning:
enabling rapid and consistent
deployment of IT resources with
improved change control. Here are
the tools that provision a platform
with operating systems, patches,
applications and services that allow it
to be a resource for a given workload. Provisioning tools may be
automated (and therefore controlled)
by the service level management and

automation engine; alternatively, they may be more manual, in which case they may help IT managers seeking to deploy patches or upgrades to groups of servers remotely.

Platform management and monitoring: enabling system monitoring, inventory, alerting, group management and capacity management. These technologies contribute the individual node and group systems management that lets IT administrators manage the hardware and software elements of storage, server and network equipment.

Making dynamic IT happen

Merely knowing what technologies lead toward dynamic IT doesn't ensure their implementation will go smoothly. But a number of design principles apply.

For one thing, point products or solutions with little connection to other parts of the IT value chain are clearly of limited value. Applications that lack business rules or service level requirements as key design inputs won't make the grade. In turn, service-oriented architectures incorporate layers of abstraction that allow for the rapid changing of IT system behavior – which, in turn, allows for rapid re-architecting applications and solutions.

Dynamic IT is also heavy on modular design, the use of standards when possible and multiple levels of virtualization. Dynamic IT simultaneously increases the number of logical connections among IT resources and cuts (or masks) as many physical interdependencies as possible. While virtualization has been available within IT systems for decades, its application is spreading to a much broader range of hardware and software systems.

Finally, dynamic IT comes with a flexible internal/external sourcing model and a flexible operating cost model. One major benefit of dynamic IT is the flexibility it brings to internally source or outsource various components as business conditions require. A flexible cost model that supports usage-based pricing or on-demand access to resources is also a key ingredient.

Measuring the value

Naturally, enterprises must rigorously track both the cost and contribution of dynamic IT. This can be difficult to envision. How is IT supposed to improve a business process? Faster response time? Around-theclock coverage? Fewer errors? How will improvement be measured? What did the IT behind that improvement cost?

Because IT investments may support multiple business processes, and because a business process improvement may come from multiple IT investments, matching costs to improvement is a challenge.

We find that getting the most out of dynamic IT requires two linked



measurements:

- IT costs supporting a business function.
- Improvement in that business function.

The linkage must come from detailed monitoring on both sides. This is where the service level architecture and metering and monitoring technologies in dynamic IT come in – dynamic IT helps monitor and report on itself to enable optimal use of IT resources. The same goes for business monitoring and business analytics.

IDC, in its IT Value Metrics and Measurement research practice, closely studies the way leading U.S. and global companies justify, monitor and optimize their IT investments (see sidebar) – but let's face it, there are no silver bullets. The most important requirement is that there

be some ongoing monitoring of improvement and costs.

The roadmap

Building a dynamic IT capability is a large and complex undertaking. Where should CIOs start the journey? The answer will vary by organization, but in a recent IDC survey of U.S. business executives it was clear that the dynamic IT areas most directly connected to enabling business process improvement (flexible applications; integrated data and information; and improved communication and collaboration) are the most urgent.

On the other hand, dynamic infrastructure investments, largely invisible to business executives, are considered lower priority. This is a big challenge (and opportunity) for CIOs, who must connect the dots between infrastructure investments and business performance.

For CIOs trying to develop and prioritize steps toward a dynamic IT environment, here are some key findings from our research:

- Business executives' priorities will focus on business processes. This seems self-evident, but IT execs must remember that their business counterparts will always see IT through the lens of their own operations.
- There are mixed messages about process visibility. In surveys, real-time monitoring of business ranks low. This may be an anomaly, but it may reflect a growing realiza-

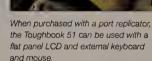




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Accounting for Dynamic IT Value

A dynamic IT organization is always measuring and monitoring itself. To help businesses do so, IDC's IT Value Metric and Measurement research practice recommends the following:

- Track IT consumption costs to collect data for controlling IT costs and showing IT usage volume/patterns.

 Businesses should set parameters through joint efforts by business functions (such as finance, engineering and IT); model IT service costs on key metrics that are highly correlated cost drivers; and report cost data in a way that is meaningful to constituents.
- Track IT-enabled business process performance to collect data for directing IT dollars to areas of greatest impact and for maximizing process performance.

 Companies should focus on what must happen in order for processes to be considered successful (e.g., expected benefits, impacts, outcomes); identify key per-

formance indicators with quantifiable markers of how IT is expected to impact process performance; and ensure the tracking process has an internal logic that takes into account the potential impacts of one part of the process on others.

 Use the data from both initiatives to more closely manage enterprise activities to strategic objectives. For example, enterprises should undertake interventions to improve process performance through adjustments to IT capabilities and services or through process adjustments that improve the way people work with technology and conduct the process itself; focus on net benefits to the organization by comparing cost and usage data to related business process performance data; and plan for future IT-enabled directions more confidently on the basis of data that exposes costs and usage patterns, process outcomes, dependencies and non-IT factors that affect performance.

tion that visibility into processes – analytics and business intelligence – can be useless without the wherewithal to act on what's learned.

- Infrastructure improvements are less urgent to line-of-business executives. IT investments and capabilities are less directly visible to business executives, which creates an internal marketing challenge for CIOs.
- Connecting the dots is critical. CIOs must be able to articulate and measure the business impact and value of planned investments.
- Improving IT capabilities trumps lowering IT costs. In our research, three of the four top-rated priorities involved improving IT capabilities (functionality, speed, flexibility); only one involved lowering costs. Business executives are not so skeptical of IT value that they simply want to squeeze down costs. This is valuable equity that IT must conserve through well-managed projects and high-quality service.

With dynamic IT applied to the process of measuring its own impact, companies can get a jump on creating a succession of temporary advantages that, over the long run, equal sustainable competitive advantage.*

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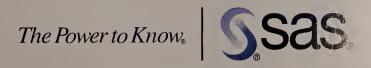
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Start-up takes new anti-virus tack

BY JOHN FONTANA

Start-up Avinti is putting a virtual server twist on a well-known concept — quashing viruses that use e-mail as their delivery vehicle.

The company this week will unveil its iSolation Server, a virusblocking technology that uses a virtual server to open e-mail attachments and observe their behavior to judge whether the mail is safe to pass onto the LAN.

Users need not wait for updated anti-virus signatures, such as last week's JPEG of Death vulnerability, to catch the newest viruses because the virtual server doesn't use signatures.

Instead, it executes e-mail attachments to expose unexpected activity or malicious intent such as file system access, self-replication, address book lookup, modifications and access of the system registry, or disk access. If any of that activity is detected, the e-mail is dropped.

The iSolation Server sits at the edge of the network and intercepts e-mail coming from any SMTP relay. The virtual server filters out the e-mail with attachments or active hyperlinks and lets all other e-mail pass through to the corporate e-mail server. The filter can be configured to weed out and test only those attachments most likely to carry viruses.

"This is a great first line of defense that is much better than giving everything to your antivirus software and mail server to choke on," says David Cassee, director of IT for IntelliTarget, an outsourcer of temporary help for corporate sales departments in Coshocton, Ohio. "This is more flexible than traditional antivirus software because I can detect a virus before the virus definition is out."

Cassee and other early adopters say they were initially skeptical but that has faded away along with concerns about latency.

"My biggest concern was that it would disrupt operations but we haven't had a single bump in the road," says Darren Massey, a systems integrator working with the Utah branch of the Make-A-Wish Foundation. Massey says another plus is a reduction in help desk calls from users trying to figure Filtering out rogue behavior Start-up Avinti is using virtual machine technology as the basis for its anti-virus platform for e-mail. **Ouarantine** Solation Server 4 The e-mail server E-mail is received via the Internet or any SMTP 2 Mail that does not Mail found to have delivers mail to relay by the iSolation Server, which executes have any malicious malicious code is the intended attachments or activates hyperlinks within a attachments is sent quarantined. virtual machine to test for rogue behavior. to an e-mail server. recipient.

out dialog boxes presented by desktop anti-virus software. The software also can buy companies time as patches are tested and rolled out, a process that can take weeks or months.

"If we can block viruses based on what they do instead of using signatures, that is powerful," Massey says.

"It's a unique idea and a great complement to anti-virus and spam filters," says Teney Takahashi, an analyst with Radicati Group. He says performance will be an area of concern for large companies, but if virus attacks continue like they have with exploits coming nearly at the same time vulnerabilities are discovered — "the need and value of this product will be apparent."

Avinti officials say iSolation Server can handle 5,000 to 6,000 mailboxes per processor and plan to release a version next year that ties multiple iSolation Servers to one console for large corporate deployments.

The virtual server uses what Avinti calls a black box, a simulated client that has a generic version of Windows 2000, the Microsoft Office suite, WinZip and Adobe Acrobat. Users can modify the black box with other applications for dealing with specific attachment types. Avinti then adds a management layer that can observe behavior within the black box.

The virtual machine technology is based on open source

"We wanted to be a virtual machine management company so we used off-the-shelf plumbing," says Terry Dickson, CEO of Avinti. "But we have designed this so we can run our virtual machine management technology to run on top of multiple virtual machines, such as those from Microsoft or

The iSolation Server prices start at \$35 per user for installations with hundreds of mailboxes, and \$20 per user for those with thousands of mailboxes.

Azul Systems to launch Java appliance

■ BY ROBERT MCMILLAN

A start-up run by the former CEO of Cobalt Networks is readying a multi-core server designed to speed up Java processing in the

Azul Systems, a 2-year-old, 130-person company, expects to begin selling the server in the first half of 2005, the company said. The company's president and CEO is Stephen DeWitt, who served as vice president and general manager of Sun's server appliance division after Sun purchased Cobalt (a Linux systems vendor) in 2000. Dewitt left Sun two years after the Cobalt acquisition.

DeWitt's company has developed a server appliance that works with existing Java 2 Platform Enterprise Edition (J2EE) software without modification to increase processing performance, says Shyam Pillalamarri, cofounder and vice president of software engineering at Azul.

"We have figured out a way to mount compute power remotely," he says.

Azul wants to emulate the success that Network Appliance had building storage appliances with the Network File System proocol, but Azul's appliance will support the J2EE standard used by application server software from companies such as IBM, BEA Systems and Oracle, Pillalamarri says.

Azul's server appliance eventually could be used to speed up .Net applications by supporting Microsoft's Common Language Runtime, Pillalamarri says. "We could support that in exactly the same fashion," he says. "That's not something that we're targeting right now because most of the market is J2EE.

To use Azul's product, customers must install proxy software on their servers, which then offloads J2EE processing on to the Azul server appliance. The Azul server, which has yet to be named, will be based on a custom 24-core processor designed by Azul and manufactured by Taiwan Semiconductor Manufacturing, Pillalamarri says.

The proxy software can be installed on the Windows, Linux, Solaris, HP-UX and AlX operating systems, he says.

Azul has not yet determined the exact configuration of the appliance, but it is considering a size as large as 11U with 16 processors and 256G bytes of memory. Such a system would have 384 processor cores and would be able to run Java applications, split into a large number of discrete tasks called threads, much faster than today's servers, Pillalamarri says.

The appliance also will run management software called the Compute Pool Manager that will let administrators assign guaranteed levels of processor and memory access to specific applications, he says.

One analyst expressed skepticism over the

"The issue is the overhead — in other words, the time it takes to transfer the code over to the box, crunch it and return it," says Kevin Krewell, the editor-in-chief of Microprocessor Report.

Although Azul has been secretive about the specifics of its processor and system designs, Krewell says he expects vendors to have more success through integrating Java acceleration into the servers running the J2EE application than through offloading the work to server appliances.

Another initial problem might be server licensing fees. For example, Oracle requires a software license for every processor core that runs its software, meaning that Azul's 11U system would require the equivalent of 384 single-processor licenses.

Pillalamarri admits that current licensing models present a problem. However, pressure from other hardware vendors, many of which are considering multi-core system designs, and from customers eventually will force software companies to change their licensing policies, he says.

McMillan is a correspondent with the IDG News Service.





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At Global Crossing, we built an IP network that provides service to more than 500 commercial centers in 50 countries on 5 continents. Not surprising from a company that first offered VoIP technology to enterprises and wholesale carriers four years ago. Today our network carries more than 2 billion VoIP minutes per month. And our groundbreaking iVideoconferencing™ technology promises to become the standard in how companies communicate. When it comes to how we communicate, it's always with a single contact point for customers. We believe there's no better way to make sure they remain satisfied customers. To look into becoming one yourself, visit us at globalcrossing.com.



mirastraugu OPERATING SYSTEMS NETWORKED STORAGE

F5 appliance extends remote access

BY TIM GREENE

F5 Networks is wheeling out new hardware that lets more remote users securely connect simultaneously to corporate networks than past iterations of its product.

Called FirePass 4100, the security appliance supports 1,000 simultaneous users, up from 100 users its current Firepass 1000 supports. Firepass 4100 boxes can be clustered together to support up to 10,000

- Artisoft, a maker of IP PBX software, bought IP PBX hardware vendor Vertical Networks this week for about \$19 million, Vertical Networks products include the Instant-Office IP PBX for small businesses and branch offices. Artisoft makes software called TeleVantage, for IPbased call centers. The company plans to integrate its software into the InstantOffice platform, which is deployed in more than 7,000 sites, including CVS Pharmacy, Household International, Aramark and The Boston Globe.
- Proxim last week rolled out an entry-level wireless LAN access point and management tool. The Orinoco AP-700 brings enterpriseclass features, such as security and QoS, to the low end, the company says. The AP-700, successor to Proxim's current AP-600, includes security features such as advanced roque access point and client detection on the 2.4-GHz and 5-GHz bands. It also adds support for 802.11i, the wireless security standard. The features are available as part of Proxim's Release 2.5, a software upgrade that will be available across the vendor's entire family of Orinoco access points by mid-October. AP-700 will sell for \$599. Proxim also introduced the Orinoco Smart Wireless Suite, a trio of management, software distribution and site survey tools from vendor partners Wavelink and Ekahau.

users at one site.

By comparison, Juniper's largest appliance, the SA 5000, supports 1,000 users only when three are clustered together. Aventail's SA 1500 supports 1,000 users in one box, and it is possible to tie only two boxes together.

Supporting a high number of simultaneous sessions is important to Coinstar, a coin-counting kiosk company with 12,000 machines in supermarkets nationwide that need to make connections to corporate headquarters, says Michael Lau, network systems manager for the Bellevue, Wash., company. The kiosks dispense prepaid calling cards and debit cards that

require the machine to check authorization with servers at company headquarters, Lau says.

Currently, the coin machines make dialup connections that are slow and expensive. DSL connections to the Internet in combination with FirePass gear could speed transaction times and reduce the use of expensive direct dial, he says. "We're looking for a faster way to connect,"

The new FirePass 4100 hardware also supports F5's TrafficShield application firewall. TrafficShield blocks malicious activity based on policies that define what actions are considered acceptable and unacceptable for each Web application it protects. For instance, a user might be allowed to access a page but be blocked from changing key fields, such as a customer name, to access that customer's data.

This appliance and software combination is F5's first TrafficShield product since it bought the technology by acquiring Magnifier. The technology competes most directly with Teros, but features of application firewalls are supported by other vendors, according to Joel Conover, an analyst with Current Analysis. For instance, Check Point's Web intelligence addresses some of the same types of threats, but also

See F5, page 20

Quovia updates VolP mgmt. appliances

BY PHIL HOCHMUTH

Quovia this week is scheduled to release new versions of its IP PBX management appliances with improved monitoring and remote features it says will help users with 3Com, Cisco, Nortel or NEC IP PBXs run their converged networks more

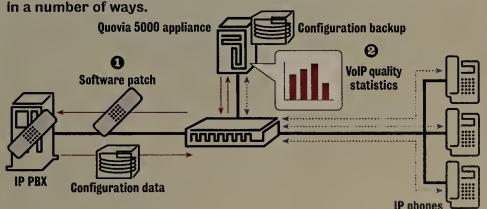
The Quovia 5000 appliance adds management and VoIP network monitoring features not typically supported on IP PBXs. The 5000 and lower-end 3000 are set to launch this week at the Internet Telephony Expo in Los Angeles.

The Quovia 5000 and 3000 appliances follow Quovia's previous ION appliance for monitoring and managing VoIP networks. The ION lets users perform live backups on IP PBXs without taking down the devices (some products, such as 3Com's NBX, require the box to be offline for backups). Another use of the ION product is to schedule software upgrades to IP PBX operating systems during offhours, so phone service is not interrupted. The ION also supports VoIP call quality and traffic monitoring, which lets users receive alerts if IP phone traffic suffers

The 5000 and 3000 series run the same software with all the same features as the ION, but faster than the previous appliance, Quovia says. The ION is based on Linux running on an Intel-based server hardware, Quovia says. But the new appliances use three dedicated network processors for

Monitoring VolP

Quovia's new 5000 series appliance can manage IP telephony networks



- 1 Working with either a 3Com, Cisco, NEC or Nortel IP PBX, the Quovia 5000 can be used to update software patches on IP PBXs and back up an IP PBX's configuration settings while the device is online.
- 2 The appliance also can monitor VolP settings, such as jitter, delay and call volume, and alert administrators if the LAN becomes congested or if call latency increases.

various management tasks, such as traffic monitoring, call quality analysis and network encryption, for securing call management traffic on the box.

The 5000 series includes a 40G-byte hard disk, which can be used to store software patches and operating system updates for an IP PBX. Targeted at networks with more than 10,000 users, the 5000's storage also can be used to back up IP PBX configuration files and other data. The 3000 series, for smaller networks, performs the same monitoring and management functions as the 5000, but does not include storage

for storing backups and software updates.

The 5000, 3000 and ION series boxes connect to a corporate LAN for monitoring IP telephony traffic. If IP voice runs in a specific virtual LAN or subnet, the appliances would be connected to that segment. Software updates and configuration file backups for IP PBXs also are done

The devices include serial port connections, which lets them plug into a port of an IP PBX for off-LAN management. This lets the appliances power down IP PBXs

See Quovia, page 26

WIRED WINDOWS Dave Kearns



ep. Edward Markey (D-Mass.), when he was chairman of the House Subcommittee on Telecommunications, once announced that there was good news and bad news about the Internet. The good news, he said, was that everyone in Washington supported the Internet. The bad news, though, was that nobody knew what it was.

The same could be said about legislators, administrators and other political animals in Sacramento, Calif.; Austin, Texas; Albany, N.Y.; or any other state capital. Maybe it's time we did something about it.

There's an election coming up in the U.S. in a month and, while the national

Get to know IT issues that could affect the election

press seems to be fascinated by what the two major presidential candidate did, or didn't do, 35 years ago, there's a decided lack of coverage about what's happening today and what will happen in the near future.

Infrastructure

In the past year we've seen the passing of the national CAN-SPAM legislation (which hasn't helped reduce the junk in my in-box), we've seen a California state senator introduce a bill to ban Google's Gmail service even before it gets started (www.nwfusion.com, DocFinder: 4028), and we've seen lots of heat (but little light) concerning taxes and Internet businesses, regulation of VoIP and expensing of stock options. But what we've really seen is further evidence that our elected representatives in the state capitals and in Washington have no knowledge of technology, the Internet or the businesses and services that the two make possible.

I'm not going to tell you who to vote for.

In many cases, I couldn't help anyway because the candidates are quite mum when it comes to technology issues. So you'll need to do your own homework, and you'll need to get out and ask the tough questions.

I doubt that anyone reading this will have the opportunity to question President Bush or John Kerry about his vision for technology, or that we'd understand the answer if you could. But in your local elections for state legislator, city council and the like there are numerous opportunities for individual voters — such as you or me — to question the candidates directly, and find out where they stand (or if they even understand) the issues that directly affect your job and your future.

It's said that our elections have become the battleground of special interests. I can't think of an interest more special to us than technology, networks and our future with both. Talk to the candidates, then be sure to vote. Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be be reached at wired@vquill.com.

Tip of the Week

Late this month I'll be at two different identity management conferences, and I hope to see you at one or the other. Digital ID World in Denver (Doc-Finder: 4029) and the Mobile ID Services show in San Francisco (DocFinder: 4030). Each will offer interesting programs for you. Check them out!

McData box offers SAN consolidation

BY DENI CONNOR

McData last week introduced a Fibre Channel, iSCSI and Gigabit Ethernet storage-area network router for users who are aggregating storage from a number of networks within an organization.

The Eclipse 2640 SAN Router provides interoperability between Fibre Channel SANs, IP networks and iSCSI SANs. The SAN router also can be used to connect regional offices and remote sites with the data center for disaster-recovery purposes or to consolidate branch offices into the corporate data center for management purposes.

The router also can intercon-

nect SAN islands while preserving the fault isolation, security and management of those independent groups. It also can connect servers via iSCSI to Fibre Channel SANs.

"Products like this SAN router are really starting to hit now because customers have a lot of independent SAN islands that have been created," says Randy Kerns, a senior analyst with Evaluator Group. "People are wanting to get data between all these SAN islands; routing is the way to accomplish this. It's also a way to connect stranded servers back into the data center."

The SAN Router is the first product to come out of McData's



McData's 2640 SAN Router offers Fibre Channel and iSCSI storage aggregation features.

acquisition of Nishan Systems in August 2003. The router has 14 Fibre Channel and two Gigabit Ethernet ports. It also sports bandwidth management, rate shaping and flow control capabilities, which let users reduce packet loss.

The Eclipse 2640 competes with Cisco's MDS 9000 Multilayer Director level switches and with

Brocade's 7420 Router. Unlike those devices, in replication over distances it supports Fibre Channel termination in which Fibre Channel packets are translated to IP packets rather than being tunneled in IP packets.

The Eclipse 2640 is expected to be available in the fourth quarter of this year, starting at less than \$100,000 ■

Quovia

continued from page 19

and gives access to the IP PBX command-line interface through the serial port.

Quovia ION boxes are installed on the network at the Ventura County Unified School District in California. The school uses more than 20 3Com NBX IP PBXs to support more than 1,200 IP phones in 26 schools, which are connected via a Gigabit Ethernet metropolitan-area network.

"The Quovia [appliances] give us features that just aren't available on the 3Com" IP PBXs, says Ted Malos, IT director for the school district. Malos uses the Quovia appliances to automatically power his 3Com NBXs on and off for scheduled maintenance.

The ION appliance (and the new 3000 and 5000 series) also have terminal server features. This lets NBXs be plugged into a serial port on the Quovia box and gives users remote access to the IP PBX command line via an IP link.

Malos says he prefers this method to using telnet or Secure Shell to access the IP PBXs directly over the network because those programs aren't secure. It also lets him shut off telnet on his NBXs, which closes a potential vulnerability for a network attack on the boxes.

The Quovia 3000 and 5000 appliances will be available next quarter. The 3000 starts at \$500, and the 5000 costs about \$2,000.



continued from page 19

provides a firewall and VPN, he says

"Depending on what you're trying to defend against, you've got a lot of choices. You have to identify the biggest threat and address it," he says.

F5's appliance has four ports, one for connecting to a WAN, one to a local network, and two for connecting to separate virtual LANs as a way to limit resources that user groups can access. The device also includes a separate chip to perform encryption, which can improve performance



F5's FirePass 4100 can be clustered to support up to 10,000 users.

three to four times vs. its gear without them, the company says.

F5 also is announcing a new version of its FirePass Controller software that runs its Secure Sockets Layer remote-access gear. The new version adds support for Pocket PC and Solaris operating systems. It also simplifies the user interface for defining users group and associating them with authorization to access sets of network resources. So it becomes quicker

to define resources for the marketing department by giving them access to defined groups of sales and accounting resources rather than identifying each resource that makes up those two groups.

Base price for TrafficShield 4100 is \$40,000. FirePass 4100 costs \$25,000. Both are available now.■







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Winning over skeptics, VoIP support builds

BY PHIL HOCHMUTH

hile brand-name companies are making news with ambitious convergence plans, other large businesses eyeing convergence say VoIP adoption will be more of a slow march than a sprint.

Industry experts say that IP PBX and phone technology is ready for mass deployment, after years of doubts about the technology's ability to scale and provide 99.999% uptime — the tenet for system reliability among corporate telecom executives. But just because the gear is ready to go doesn't mean every company is ready for a telecom rip-and-replace job, analysts and users say.

Last week, Bank of America announced plans to standardize on Cisco IP phones across the entire company, with an eventual 180,000 IP phones running worldwide. Last month, Ford and SBC announced plans to install 50,000 IP phones in the carmaker's U.S. offices and plants. And in July, Boeing said it would install 150,000 IP phones throughout the company worldwide.

Clearly, support for larger IP telephony rollouts is mounting; the number of IP phones planned among just Ford, Boeing and Bank of America represent about one-quarter of all IP phones shipped last year, according to IDC. The research firm says the installed base for enterprise VoIP gear will grow dramatically over the next several years. About 200,000 IP PBXs are installed in organizations now; 1.4 million IP PBXs are expected to be running by 2008. Meanwhile, worldwide IP PBX revenue will more than double from \$2.6 billion this year to an anticipated \$6 billion over the same time period.

But IDC's numbers show that the future of business telephone technology is not all VoIP — not even a majority. IP PBX revenue still will account for only two-fifths of all business phone equipment revenue in four years. By 2008, the number of circuit-switched PBX lines installed in businesses and organizations worldwide will still outnumber the amount of installed IP PBX lines by 3 to 1.

This is because swapping out large, entrenched business phone systems — usually consisting of multiple vendors' products — is very complicated, IT executives say. Also, some users say it is still challenging to prove the bottom-line case for exchanging current PBXs for IP gear.

On the bright side

The large IP deployment plans that are coming out now signal IP PBXs have finally overcome scalability and reliability issues that dogged the technology for years.

"When it comes to just building a phone system, most vendors' products are good enough [technically] for that," says Bob Hafner, director of research for Gartner, on recent IP telephony adoption. When VoIP installations go wrong, he says, "it's not the technology; it's the implementation — either the end user or supplier or channel didn't think of something."

But while the technology is now sound enough for big-time rollouts, besides the Boeings and Bank of Americas and Fords of the world, IP telephony "is not happening as fast as what I had expected," Hafner says. The holdup is that each company must justify the costs

Big IP PBX rollouts

Some of the challenges and strategies involved with installing large IP telephony networks include:

Challenges

- Replace entrenched PBX gear and phones, often from multiple vendors.
- Ensure call quality and feature parity on new IP PBXs and phones.
- Justify costs of telephony swap.

Strategies

- Roll out IP telephony gear slowly in phases and regional deployments.
- Upgrade data infrastructure and work with experts with knowledge of voice and data networks.
- Conduct internal ROI studies, evaluating potential cost savings on IP PBX management and equipment, and quantifying possible productivity gains from converged applications.

of a convergence project and judge whether the potential productivity enhancements and cost savings outweigh the cost of ripping out working telecom gear.

"Anyone looking at an IP PBX already has working phones on desks," Hafner says.

VoIP: How much, how soon?

Most IT professionals say IP telephony is an eventuality. In a survey of 500 IT professionals released last month by the Computing Technology Industry Association, 73% of respondents said they use or plan to use convergence hardware and software over the next 12 months. But plans on how much VoIP will be deployed and when can vary greatly among large organizations.

"Our viewpoint is that we don't want to deploy any new digital PBXs and handsets anymore," says Charles Goodall, director of telecommunications for GlaxoSmithKline, the pharmaceutical giant headquartered in the U.K. "Within the next three to four years, our goal is that the majority of our phones will be IP handsets and softphones."

GlaxoSmithKline has multiple phone systems from Avaya, Nortel, Cisco and Siemens, with various amounts of shelf life left in each respective PBX. This would make an immediate, company-wide change to IP difficult and uneconomical, he says.

"For the most part, you don't save a lot of money upfront," Goodall says when installing new IP voice gear. "Let's face it: [Legacy] digital handsets work. Whether or not you should get rid of them depends on where you are in terms of depreciation and support contracts for those phones," he adds.

The firm recently took its first steps toward convergence with an all-IP installation at a new 400-employee office in Charlotte, N.C. Every phone in that building is a

Siemens IP phone, and the central phone system is a server-based HiPath 4000 IP PBX.

But GlaxoSmithKline will build voice networks on IP on a case-by-case basis over the next several years across the company.

"I would say IP phones are in use in a small percentage throughout the company" and will be for some time, Goodall says. He says the company will take its time choosing which vendors' equipment to install, with a plan to standardize on a few suppliers for different regions, such as the U.S., Mexico and Europe.

"The most important thing for us right now is to look at regional [VolP] deployments and make sure we have standardization within various regions," Goodall says.

Cost savings and efficiency

Goodall says IP telephony in the long run will provide cost savings and great efficiency for employees, which is why he is excited about the future.

Regarding converged applications that promise better efficiency, "I see a lot of potential value in that for our workforce," he says. "We have a large percentage of people who are not in the same office every day or who are on the road a lot."

Nissan North America, like GlaxoSmithKline, closely watches what its large-enterprise peers are doing in VolP.

"We never think of ourselves as trailblazers," says Steve Lydston, IS manager for voice and data at Nissan North America. "We want to be like the fifth or sixth [big company] to go down a certain technology path."

The firm recently installed Siemens IP phones in a limited rollout in its Atlanta office, serving several hundred users with IP phones. These phones were deployed along with digital sets in a hybrid Siemens HiPath system. A malfunctioning cable that connected Cisco LAN switches in a stack caused problems in linking the IP phones to the hybrid Siemens PBX — a problem Lydston hopes to avoid in other offices.

"You would think, listening to what all the manufacturers are saying, that everyone understands how to do this," Lydston says. Between his staff and IBM Global Services, which Nissan North America is using to outsource VoIP installations, "I can count on one hand the number of people who really understand voice and IP," he says.

Lydston says he is sending his staff to be trained on convergence technologies alongside the IBM engineers also involved in the company's VoIP projects.

"When you put it in right and understand it, it becomes really obvious that [IP telephony] will be the way to go," Lydston says. "But we want to manage the speed at which things happen. We want to make sure people really get it first." ■

More online!

Listen to highlights from *Network World* columnist's Johna Till Johnson's keynote presentation on ways to maximize your VoIP investment

DocFinder: 1541



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-Laura DiDio, The Yankee Group, April 2004 Linux, Unix, and Windows TCO Comparison

The Yankee Group, a global research and consulting firm, concluded that a significant switch to Linux from Windows or Unix could cost three to four times as much without delivering tangibly better performance or business value. These findings are based on a non-sponsored worldwide survey of 1,000 IT administrators and C-level executives in midsized and large enterprises.

To get the full study, visit microsoft.com/getthefacts



Enterprise Difficulties PORTALS MESSAGING/GROUPWARE E-COMMERCE SECURITY MIDDLEWARE DIRECTORIES **NETWORK AND SYSTEMS MANAGEMENT**

Site: Lessons from leading users

Postal Service delivers single sign-on

BY JOHN FONTANA

he most famous person on the U.S. Postal Service's payroll — six-time Tour de France champion Lance Armstrong — is known for his singular focus, a trait that appears to be rubbing off on his colleagues who handle the government agency's IT services.

The focus in IT isn't on a bicycle race, but on single sign-on (SSO), a way to ease password management for IT staff and end users alike, and help slash by 10% the monthly slog of password reset calls to the help desk.

The USPS' IT department is enjoying the first fruit of a nearly two-year effort that has resulted in the rollout of SSO capabilities to nearly 150,000 users who access nearly 1,000 applications on the agency's network.

'We believe single sign-on improves our user experience. It reduces costs and it actually improves security," says Wayne Grimes, manager of customer care operations for IT at the USPS.

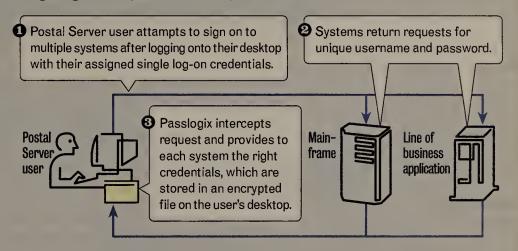
Grimes is based in Raleigh, N.C., the hub of the USPS' distributed infrastructure.

"If you have 15 or 20 identities or passwords for your legacy applications you have to have those written down someplace or stored in a file. It might be a Post-It note on the terminal, or it might be on a piece of paper in someone's wallet, or it might be in a file on the computer. None of those places are acceptable," Grimes says. "So SSO and streamlining the number of passwords that users have has absolutely improved our security."

Grimes says the USPS has a threepronged attack to meet its goal of having users log on once and not have to enter another user ID or password to gain access to network applications or partner Web sites. He says the ultimate implementation of that goal is SSO, but something he calls single logon, which requires the user to re-enter the same password at each application, is another acceptable implementation.

We deliver

The U.S. Postal Service is using Passlogix's V-GO SSO application to bring single sign-on capabilities to 150,000 of its users.



The USPS' three-part plan uses V-GO SSO from Passlogix, which provides quick SSO capabilities to end users without having to modify applications; Oblix NetPoint to provide SSO for external users coming onto the USPS net-

work; and a massive multi-year project to modify internally developed business applications for SSO using Kerberos and Microsoft's Active Directory. To date, the USPS has modified See Postal Service, page 30

- **Encentuate** this week unveiled Encentuate TCI, identity-based access control software that includes client- and server-side features to control user authentication and authorization. The IMS Server provides centralized administration that includes deprovisioning capabilities, and logging and reporting on end-user activity. The client-side Access Agent integrates with access and authentication systems including USB keys, proximity cards and biometric solutions. TCI starts at \$80 per user.
- Identity and data-access vendor **Epok** this week introduced **Trusted** Data Exchange 4.0, an identity rights management platform that helps companies control Web ser-

vices-based data exchanges. TDX 4.0 includes a policy service to control and manage Web Services transactions including the exchange of everything from personnel information to regulated transactions. TDX lets users regulate access to data using policies in the form of digital contracts that gov ern access, transfer and utilization of data. TDX costs \$75,000 per CPU.

Oracle finally is bringing to the North American market its Oracle E-Business Suite Special Edition, a package of pre-installed, preconfigured software from its 11i suite of business applications. Oracle has offered the bundle overseas since 2002. Plans to bring it to the U.S. this year were delayed while Oracle recruited sales partners. Oracle will offer financial, inventory, discrete manufacturing, order management, purchasing, telesales, teleservice, field sales and business intelligence applications in the bundle.

Software follows trails left by computer thieves

■ BY ELLEN MESSMER

On rare occasions when employee laptops go missing, Joe Scavetti, chief information security officer at Pension Benefits Guaranty in Washington, D.C., isn't content to write it off to bad luck. Scavetti doggedly pursues each case, aided by software installed on each of the laptops that lets the devices call home.

The software, ComputraceComplete from Absolute Software, is programmed to "call home" by sending a small number of packets of data each day, either over the Internet or through a dial-up connection, to Absolute Software's data center. The packets identify the laptop, its IP address and subnet. If a corporation reports the laptop as stolen, Absolute flags it, and the next time the laptop calls in, it's instructed to call more frequently so that Absolute's

recovery team can track down who has it.

Scavetti, in charge of security at the quasifederal agency set up in the 1970s to protect private pension plans, has had success hunting down missing laptops with the software." I have two pending investigations right now with laptops that were stolen in the last few months," he says.

Earlier this year, the agency suffered the theft of two laptops, one from a hotel in San Diego and the other out of a car in Texas. In both cases, the thieves began using the laptops via a network. This led to clues about where the laptops were physically located, and within a few days the agency had tracked down the suspects with the help of local police and a local ISP. The suspects were brought into custody and are awaiting trial.

"We're going to prosecute to the full

See Thieves, page 30

Security management wares get smarts

Companies add business reporting and compliance management features to software offerings.

BY DENISE DUBIE

A slew of security event management vendors are set to offer products that address everything from how security problems affect applications to ensuring network devices comply with internal and regulatory policies.

ArcSight, Network Intelligence and Open Service each will release product upgrades that promise to help enterprise IT managers get a handle on the security events across their networks. SEM products, sometimes referred to as security information management (SIM) tools, automate the collection of log data from security devices and help users make sense of it through a common management console. These tools usually consist of software, servers and agents, or probe appliances, depending on vendor.

Applying logic

SIM products use data aggregation and correlation features similar to those of network management software and apply them to logs generated from security devices such as firewalls, proxy servers and intrusion-detection systems (IDS), and from antivirus software. SIM products also can normalize data — translate Cisco and Check Point alerts, for example, into a common format so the data can be correlated.

The technology promises to ease the burden of security staff trying to make decisions from raw log data collected off network and security devices across large corporate networks. Vendors are attempting to do more than automate the tedious tasks and provide customers with more information on what security events could mean, how they could affect business applica-

Not so simple SIM

Security information management isn't just about collecting log data anymore. Vendors add more features to help users get more from their security management tools.

Trend	What's new	Sample vendors		
Business views	Correlation and reporting features that quickly can show what users, branch office or geographic location are affected by a security event.	Network Intelligence, Open Service		
Compliance policies	Vulnerability scanning products that can compare the software licenses, device configurations and access privileges against pre-set compliance policies.	BindView, Lockdown Networks		
Traffic monitoring	Internal network traffic behavior baselining, which detects anomalies in traffic patterns to reveal existing vulnerabilities and security threats, such as a worm or virus that might have crept past perimeter devices.	Lumeta, Q1 Labs		

tions and when systems could be out of compliance with regulatory standards.

For its part, Network Intelligence this week will announce enVision 2.1, which includes features to correlate security log data to business assets, such as groups of users, geographic locations and server farms, as well as additional storage capabilities to ensure raw security data is saved and backed up according to compliance policies. The company also introduced a GUI to add intelligence to reporting and put security incidents into a business perspective.

When coupled with a vulnerability scan, enVision could quickly show that, say, an office was experiencing a security problem, such as a downed firewall, without having to understand the complexities of firewalls and IDSs.

On top of regulations

Company executives say compliance modules added to the product could help companies stay on top of regulatory requirements. En Vision 2.1 also can take advantage of an add-on storage array the vendor released last month. The SIM add-on storage array sits behind Network Intelligence's LS, ES or HA security appliances, and protects and compresses data stored on it. The company's latest release is priced at \$20,000, \$80,000 or \$200,000, depending on the number of devices managed.

Network Intelligence also added capabilities that let software spot anomalies in security and network traffic, similar to products from Lumeta and Q1 Labs. The traffic-monitoring capabilities would let software alert security staff to problems before they happen.

"For example, instead of asking the user to build rules to look for some-

thing specific, the product will look for subtle anomalies on its own, using its knowledge of what is normal based on traffic source, destination, payload and users," says Matt Stevens, president of Network Intelligence.

OpenService in its Security Threat Manager 3.0 also includes capabilities to correlate security alerts with business users, applications and assets. The latest revision of the product will map threats to predefined business assets in near real time, and provide a trend perspective to help security managers determine their most vulnerable spots and start to secure them, for example.

The feature also will point out to security staff at a manufacturing company if a security problem will affect the continual process manufacturing, which is critical to the business and therefore needs immediate attention.

Essentially, OpenService says it's trying to add more intelligence to its alerting and correlation engine. In the past, the prod-

66 We needed a tool that could identify and extract all relevant data from our firewalls, IDSs, routers, switches and so on. 55

Adam Hansen

Manager of information security, Sonnenschein, Rosenthal & Nath

> uct would collect alerts and filter our redundancies, and now the company says Security Threat Manager can help IT staff prioritize responses to incidents based on pre-defined business policies. The vendor also added platform support to include Linux.

> "We needed a tool that could identify and extract all relevant data from our firewalls, IDSs, routers, switches and so on," says Adam Hansen, manager of information security for the law firm Sonnenschein, Rosenthal & Nath in Chicago. "We wanted to see our security events related to the network and vice versa."

> Hansen uses Security Threat Manager (a beta version of 3.0 is currently in the firm's labs), but the business intelligence feature isn't as much of interest to him as

the product's ability to say, "Hey dummy, look at this. This is where the problem is," he says.

For Hansen, four full-time staffers and one consultant wasn't enough to keep up with the logs on more than 100 managed devices. He couldn't hire anyone, so he purchased a new product that he says reduces manual work and does some of the thinking for him.

"It prevents us from having to figure out that a bunch of events from different devices are all caused by one thing," he says.

Yet the product isn't plug and play. He says he took the time to get the agents pushed out to managed devices and runs regular checks to ensure it's tuned to his network. He also worked with the vendor to get more open source and vendor-specific information, such as Check Point firewall metrics or Cisco switch data, into the product.

Entry-level pricing for Security Threat Manager is priced at

> \$50,000, with the average implementation costing about \$100,000. Price depends on the number of devices and data collection points monitored.

Security storage

Separately, ArcSight last week introduced a software product the vendor says will help customers store and retrieve security data. ArcSight SmartStorage

uses the partitioning available in enterprise database systems such as Oracle and provides a customized algorithm for information that is no longer needed in real time. When a partition reaches the end of its realtime life, it is automatically compressed and stored on the same physical volume, but in a much smaller state. If that partition is needed for investigation, audit or reporting, it can be recalled via the console and reintroduced to the live data set. When the partition is no longer needed, it can be sent back to the compressed

ArcSight SmartStorage is part of the basic ArcSight 3.0 Security Information Management software system. It is not priced separately. Overall ArcSight pricing starts at \$50,000 and can go up to \$200,000.

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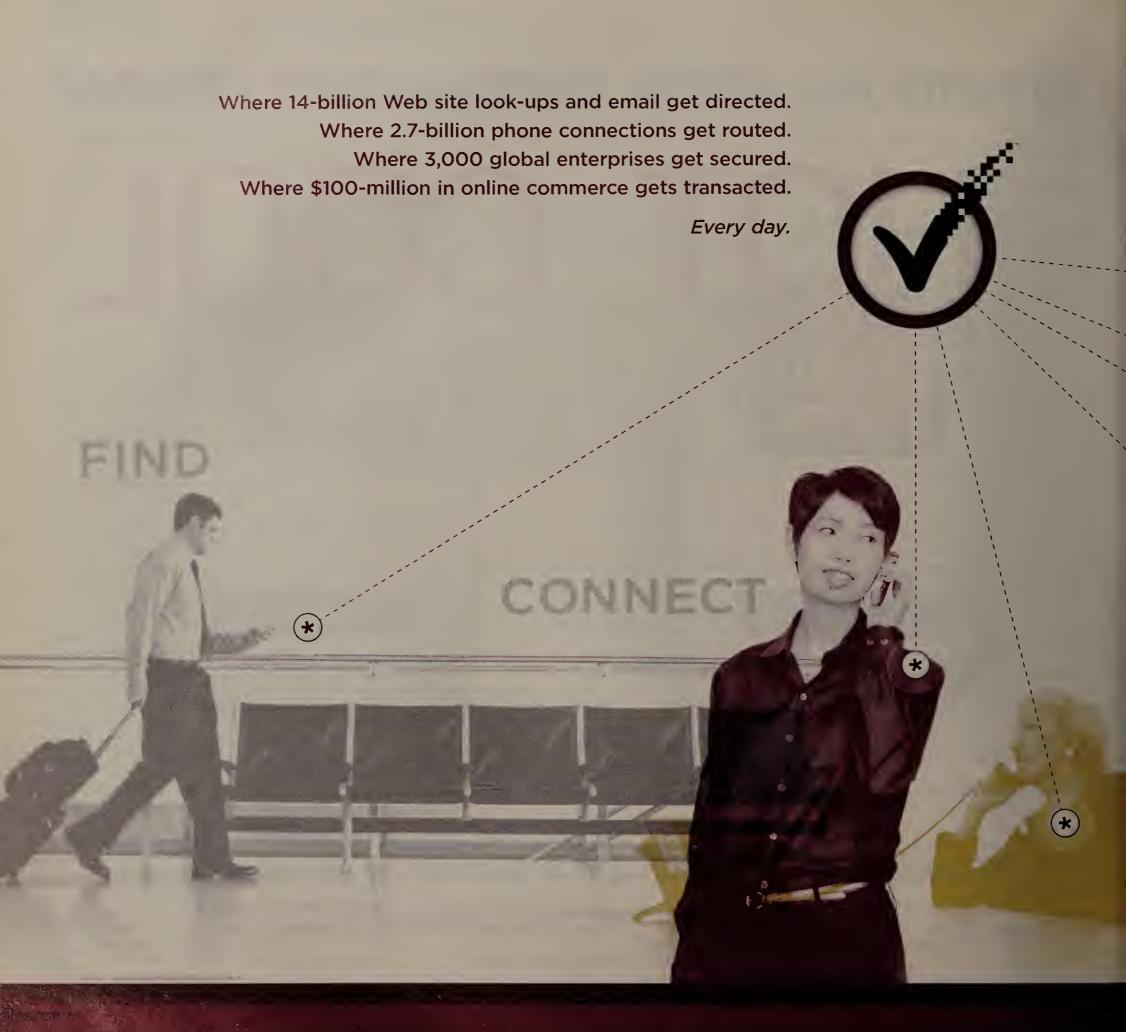
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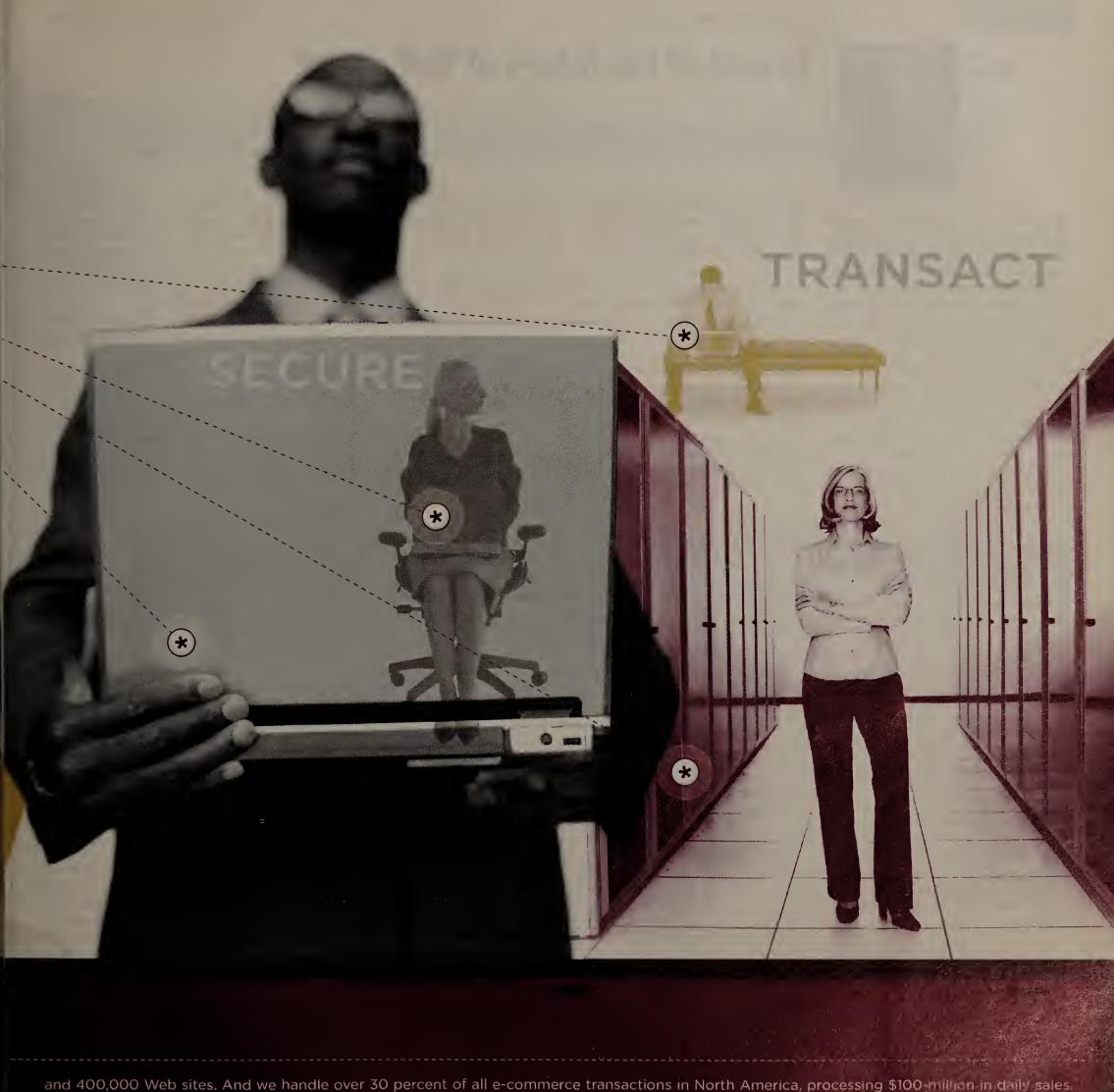
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n February, California Gov. Arnold Schwarzenegger ordered "a focused examination and assessment of California state government." The \$10 million review, conducted by about 275 state employees and released in early August, calls for about a bizillion changes to the way that state's government is run.

The 2,500-page report says California would save billions of dollars per year if all the suggestions were implemented. Recommendations include using more open source software and replacing the state phone system with a VolP one. Maybe California can do both.

The report (www.report.cpr.ca.gov/) recommends switching to open source because of a "much lower total cost of

Is part of the future of VoIP open?

ownership"; improved security "due to the extreme scrutiny of the source code before being deployed"; support for multiple environments (that is, not just Microsoft); and lower maintenance costs; and because it is "often less vulnerable to viruses." I expect Microsoft disagrees with much of this, but if anyone can stand up to "The Bill" it's "The Govenator."

The report recommends switching to VoIP for both cost and function reasons. The report estimates that switching could cut \$10 to \$40 off the average \$80 per month that the state pays for a phone line. Considering how many phone lines California pays for, even converting half the phones to VoIP could save as much as \$6.3 million per month.

If that level of savings could be realized, then the \$6.5 million conversion cost would be covered in less than two months. Even the report's most pessimistic numbers would have the break-even point within five months. The report does not talk about open source with VolP, but

lots of other people are these days.

A quick Google search comes up with about 456,000 hits for "open source' + voip." Some of the more prominent include: SIPFoundry (www.sipfoundry.org), to which Pingtel donated its software; Asterisk (www.asterisk.org), which announced its 1.0.0 release at the end of September; and the Vovida Open Communication Application Library (www.vovida.org), which has been around since 2002.

Google also turned up some sites that list available VolP software including VOIP-info (www.voip-info.org), whose Web site includes a section on open source software (see www.nwfusion.com, DocFinder: 4027). Most of open source VolP software supports the lETF's Session Initiation Protocol and some also supports the older ITU-T H.323 specification. Open source VolP software exists for phones, proxies, gateways and even for billing (www.trabas.com/opensource/). Somehow the concept of open source

billing seems a bit funny. But because a lot of VoIP will have to be connected to the paying-world regular phone system, I guess billing can be useful.

The Apache Web server and Linux have both proved that open source can be quite successful within big companies. It will be interesting to see if California and other VolP users embrace the Apache/Linux example or would rather the traditional phone system vendor picture painted by Nortel, Lucent, Avaya and others, maybe even by Microsoft.

Call me radical, but I'm far from sure that these old masters, to borrow a concept, will paint the best pictures.

Disclaimer: Harvard has museums full of old masters, as well as a lot of other things, and buildings full of not so old folks, many of whom will be seen as masters some day. But the above muse is my own.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sob.com.

Site: Lessons from leading users

Postal Service

continued from page 25

700 applications.

"There is no single technology solution to solve single sign-on. If there was, the whole world would be clamoring for it," Grimes says.

But the USPS uses Passlogix as the baseline for its SSO strategy and to bridge the gap while it modifies some applications for native SSO, Grimes says.

V-GO SSO works from a user's desktop by keeping an encrypted file of access credentials for every application available to that user.V-GO SSO is first activated when a user logs on to an application. The software asks the user if he wants V-GO to manage access to that application. If the user agrees, the password is stored in the V-GO file.

Next time the user logs on to that application, V-GO intercepts the application's logon request, grabs the appropriate credentials from its profile store and presents it to the application. The only password users need is their desktop logon.

"Ideally, from a central management standpoint, we don't have to put predefined user definitions out on these 1,000 applications," Grimes says. "That would almost be like a Y2K effort to go out and identify all those applications."

Grimes says there are other benefits, including a Passlogix logging feature that details who accesses applications and how often, data that helps deter-

66 There is no signal technology solution to solve single sign-on. If there was, the whole world would be clamoring for it. **99**

Wayne Grimes

Manager of customer care operations, U.S. Postal Service

mine if applications are still of value, especially mainframe applications.

"If you have a ROI for applications and you are getting ready to enhance that application and you find you only have 10 users and it will cost you \$300,000 to upgrade, well we now have more information on whether it would be better to retire that application," he says.

Driven by help desk calls, password reset requests and user satisfaction, the USPS began evaluating V-GO nearly two years ago as part of an upgrade of 130,000 desktops from Windows 95 and a Novell back end to Windows XP and Active Directory.

Grimes says the eventual rollout of V-GO, which concluded in August, included schema changes made to Active Directory to implement V-GO, and the creation of templates to help V-GO deal with unique logon requirements of Java and mainframe applications. Grimes also has V-GO password files replicated to Active Directory so users can roam to different machines and retain their SSO capabilities.

Grimes said it took only one full-time and one part-time administrator for the first few months of the V-GO deployment, but once the rollout got going the only tasks were developing V-GO templates and testing, which did not require a full-time dedicated employee. He would not reveal what the USPS spent on the implementation.

Now the USPS is working on SSO synchronization between Active Directory and a mainframe security platform from Computer Associates called ACF2, which contains user accounts and passwords.

"It will take us years to convert our applications, but our strategy is that we are not going to convert them just for SSO," Grimes says.

"The next time we have a maintenance, update or enhancement for those applications, then we will implement the SSO enhancements," he says. "Passlogix bridges that gap and will probably be here forever. Can you image how long it will take to go into each one of those applications and modify the code?"

Grimes can, and his current SSO implementation buys him time to cycle through the steps needed to complete the enormous task.

Thieves

continued from page 25

extent of the law," Scavetti says, and adds that laptop theft warrants a tough response if only because data stored on laptops might contain sensitive personal and business information about individual pension plans. "Use of that data could lead to identity theft, too," he says.

A few weeks ago, Absolute celebrated its 1,000th recovery of stolen or otherwise missing computers for customers in the corporate, government and academic arenas since 1996. It makes a version of CompuTrace for the Macintosh and Windows. "We have a 90% recovery rate," says Ben Haidri, Absolute's vice president of marketing.

Absolute's recovery team includes former law enforcement officers familiar with the procedures associated with subpoenas that are needed to obtain information from ISPs about network accounts. "We usually get a name and the physical address," Haidri says.

He says many ISPs are starting to charge for that information because they're inundated with requests. The fee typically is \$25 to \$50 to run the report, and if you ask them to then start preserving data associated with that account, they might charge an extra \$100 to \$200, Haidri says.

Absolute's software, sold as a service, costs about \$129 for three years' protection for one PC. This includes an offer of a \$1,000 guarantee if a stolen laptop isn't found within 60 days. Rates based on shorter or longer terms are also available. A few weeks ago, Absolute began offering its asset-tracking service.

Absolute's service competes with offerings from CyberAngel Security Solutions, Stealth Signal, ZeaSoft and zTrace Technologies. ■

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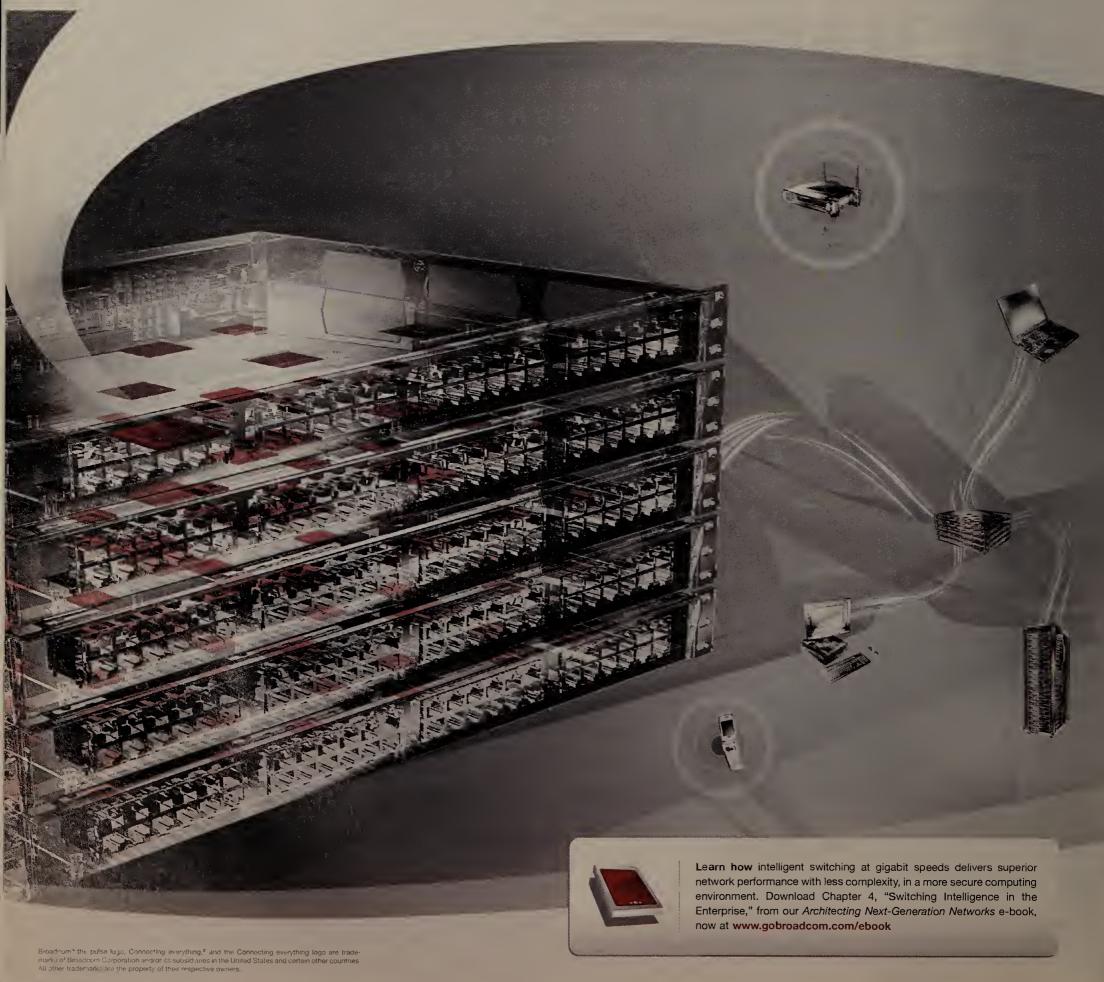


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- Last week Leucadia National filed a report with the Securities and Exchange Commission saying it has sold all its shares of MCI stock. Leucadia owned about 5% of MCI and sold its share for a pre-tax profit of about \$20 million. The document says this sale "should not be interpreted to mean that [Leucadia] is no longer interested in acquiring control of MCI, but no assurance can be given that [it] will acquire control of MCI." The company made headlines in July when it filed for permission with the SEC to buy at least 50% of MCI's shares. Since then there hasn't been much public action on either side regarding a potential deal. But last week it was revealed that MCI hired three investment bankers to help the carrier sort through potential offers.
- Qwest last week said it has expanded its **business VoIP service** to 10 additional markets. Qwest's OneFlex service is now available in Albuquerque, N.M.; Billings, Mont.; Bismarck, N.D.; Casper, Wyo.; Des Moines, Iowa; Omaha, Neb.; Portland, Ore.; Salt Lake City; Seattle; and Sioux Falls, S.D. The service began in June in Boise, Idaho; Denver; Minneapolis; and Phoenix. Owest plans to add 12 additional markets by year-end.
- According to Nucleus Research, fewer than 20% of large companies use instant messaging throughout their organizations. The study says that "negative publicity surrounding instant messaging" is one of the reasons it has not been more widely deployed. The study says that many still view IM as "a toy that takes time away from employees' productive hours, instead of a tool that can help them communicate more efficiently." Of the companies that have deployed IM, the average usage time was 15.3 minutes per day, per user, although Nucleus says that times varied widely among respondents. Although some said they used IM for non-work related communications, Nucleus says eight out of nine respondents said they only use it for business.

Upstart firm touts remote DSLAM

BY JIM DUFFY

A privately held Canadian company is attempting to head off more-established players in bringing next-generation broadband capabilities to North American carriers and their customers.

Critical Telecom, a 40-employee firm in Ottawa, this week will unveil an Ethernet remote DSL access multiplexer (DSLAM) designed to integrate fiber and copper anywhere in an access network. The company's Gemini remote DSLAM is intended to address carrier requirements for equipment to support the provisioning of bundled multimedia services that have different transport characteristics and can be dynamically requested or altered.

Such services will result from projects such as SBC's Fiberto-the-Node (FITN) buildout, in which fiber will be extended farther out to businesses or consumers for

	PROFILE: CRITICAL TELECOM
Location:	Ottawa
Founded:	1987
Management:	Oliver Cruder, president and CEO; Mark Labbe, CTO; Nancy Macartney, vice president, operations.
Employees:	40
Products:	Gemini Ethernet remote DSLAM, a broadband access platform for IPTV, FTTX and multimedia applications.
Customers:	Telus, other carriers in North America and Europe.
Fast fact:	Company initially was called Critical Control, a contract engineering services firm. It changed its name in 2000 when its focus shifted exclusively to telecom.

delivery of IP TV services, which will position DSLAMs more remotely from a carrier's central office and closer to subscribers.

Gemini features an integrated, two-port

Gigabit Ethernet Layer 2 switch for subtending or backhaul, IP transport and support for 24 to 192 ADSL2+ non-blocking

Gemini also features a so-called virtualization architecture that lets service providers map users, features and services together despite logical and physical changes to a network, such as outside plant topology and wiring, regulatory policy and

The device can be line-powered, meaning it does not require any additional power source.

Gemini is deployed at Canadian carrier Telus, the seventh-largest telco in North America. Sixty-six percent of Telus' Internet access subscribers are high-speed, so the carrier has invested \$1 billion to expand its asymmetric DSL (ADSL) network to every home and workplace in 38 communities in Alberta and British Columbia.

Critical Telecom secured the contract 18 months ago for a next-generation remote Ethernet DSLAM to support Telus' extended-reach ADSL requirement.

Private line usage up, but revenue is falling

■ BY DENISE PAPPALARDO

According to a recent study from Insight Research, private line revenue will dip 4% this year to \$33.9 billion from \$35.5 billion in 2003 — despite increased usage.

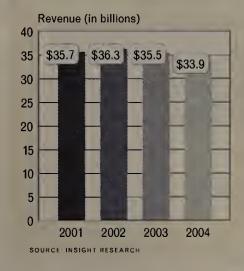
This year there is predicted to be about 20,000 more T-1 circuits deployed than in 2003, and 7,500 more T-3 circuits, says Robert Rosenberg, president at the consulting firm. This same trend is true with private line services all the way up to OC-192.

The increase in lines deployed is not translating to higher carrier revenue for three main reasons, he says.

Competitive pricing that still hasn't reached rock bottom is the main reason. "It's the same beast that's stalking all of telecom....There are too many carriers, some of which are taking customers at any price," Rosenberg says. Pricing pressure is most pronounced with long-distance carriers such as AT&T, MCl and Sprint, he says.

Users also are opting for more cost-effective services such as buying wavelengths, he says. This is especially true for carriers and very large corporations that are choosing optical wavelength services vs. dedicated private lines. There is so much capacity

Private line dip A 4% decline in service revenue is seen for 2004.



deployed that fiber strands are not as expensive as they once were, he says.

The third reason private line service revenue is taking a hit is because more users are opting for Gigabit Ethernet, he says. "Gigabit Ethernet is still a nascent market," Rosenberg says. But it's an alternative that was not widely available five years ago.

Challenges ahead

Still, it might be tough for Critical Telecom to land another contract of that significance in North America because large carriers usually award equipment contracts to large, established and deep-pocketed vendors.

SBC, for instance, has reportedly handed its FITN integration work to Alcatel and Lucent; and Adtran is a well-entrenched incumbent supplier of remote digital loop carriers and DSLAMs to SBC and other RBOCs.

"Adtran's been making equipment that See Critical Telecom, page 34



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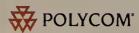




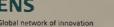
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CARRIERS

EYE ON THE Johna Till Johnson

10/4/04

A few things to know before presence really takes off

isco's recent move to acquire Dynamicsoft highlights the emerging importance of presence. In addition to softswitch capabilities, Cisco reportedly was interested in Dynamicsoft's presence engine, which integrates multiple sources of presence (mobile/ GSM, Session Initiation Protocol, Simple Object Access Protocol, calendaring and others) to let service providers offer presence-based solutions.

A few leading-edge companies are talking about the concept of a presence aggregator or presence clearinghouse: a single entity that will capture multiple sources of presence information, including geography (GPS, GSM), availability and context (who's logged on to or using particular applications).

A handful of enterprise organizations have embraced presence and are documenting clear business benefits. Over the next 12 months, these early adopters will seek to expand that value by extending presence to select outsiders, and embedding it within more applications and devices. As that happens, the market for presence aggregators will heat up.

I've defined presence in some of my earlier columns, but here are the more common questions I'm asked:

Isn't presence the same thing as instant

No. IM uses presence data, but presence is a broader concept than IM. It's a little like equating your BlackBerry with e-mail. The BlackBerry's merely the reader; e-mail includes the client software, the server and a common communications protocol.

But I don't want the entire world knowing where I am and what I'm doing every minute of every day. Isn't that an invasion

Not if it's managed effectively. A salesperson might elect to be as available as possible to his key clients, while an engineer might list herself as "unavailable" to everyone but her programming team and communicate with them only via IM

Does presence primarily apply to large IT organizations? Where does the concept of a presence carrier come in?

Interestingly, the very concept of presence was pioneered by Bell Labs re-

searchers who had the key insight that true communications wasn't about locating somebody's phone, it was about locating them. AOL is one of the early promoters of presence clearinghouses.

Service Providers

What about Microsoft? Doesn't it already own the presence applications market?

Microsoft is certainly making a concerted push toward presence with its Live Communications Server. But companies investing heavily in presence applications range from well-capitalized heavy hitters (IBM, Oracle, Cisco, Nortel, Avaya) to aggressive start-ups (Facetime, IMlogic, Akonix, Parlano). It's far too early to crown Microsoft the undisputed ruler.

The concept of presence is still futuristic, and the notion of presence aggregators or clearinghouses is still at least three to five years off. But a good example for how presence information is likely to evolve is the development of the converged cell phone/e-mail-reader/PDA. Five years ago, cell phones and PDAs were different devices entirely, and reading e-mail required a PC or terminal. Now 67% of IT participants in a recent Nemertes benchmark say their users rely on mobile devices to read e-mail - and a whopping 22% of users rely on cell phones.

Watch for similar convergence in the presence arena.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Critical Telecom

continued from page 33

the telephone companies know and trust for decades," says Jim Lawrence, an analyst at Stratecast Partners. Critical Telecom's "importance is more from influencing product design and potentially carrier architectures. They've got a smart little product, and it doesn't hurt at all to have a real-world deployment."

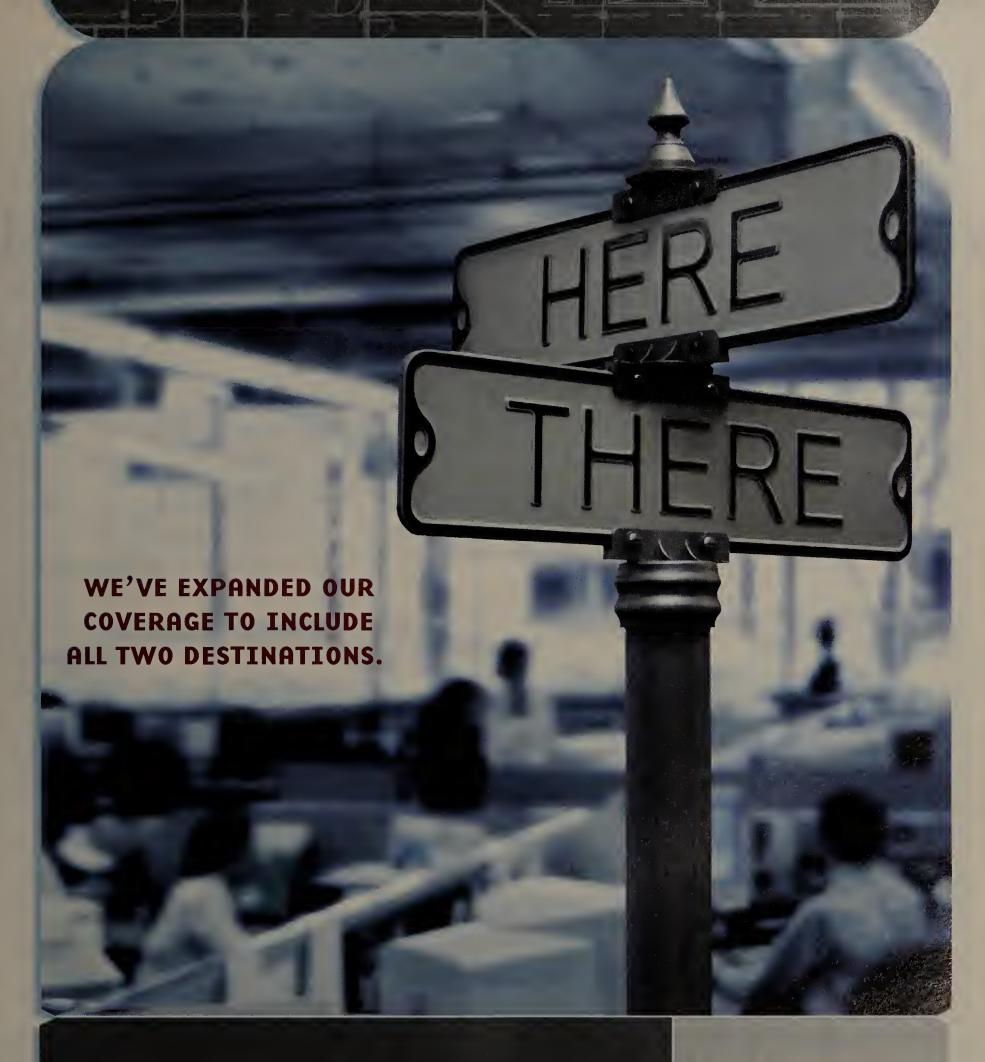
Alcatel, which is also an SBC incumbent vendor, announced its own IP DSLAM two weeks ago. Lucent is expected to partner with Pedestal for the remote DSLAM/DLC requirement at SBC.

But Critical Telecom's Gemini might give carriers pause, Lawrence says. Carriers might try to push their own vendors into developing a similar product or into acquiring the smaller company.

"As far as having demonstrated a new product architecture in this market and also against a somewhat new DSL deployment architecture — they are coming into a space where they have a product optimized for something that few other vendors have," Lawrence says.

Pricing for Gemini was not disclosed.





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BY ANJA ALLEN AND DAVID FRATTURA

The soon-to-be-ratified IEEE standard. 802.1AB Link Layer Discovery Protocol, promises to simplify troubleshooting of enterprise networks and enhance the ability of network management tools to discover and maintain accurate network topologies in multi-vendor environments. The protocol is expected to become an official standard next month.

LLDP is a neighbor discovery protocol. It defines a standard method for Ethernet network devices such as switches, routers and wireless LAN access points to advertise information about themselves to other nodes on the network and store the information they discover. Details such as device configuration, device capabilities and device identification can be advertised using this protocol.

In particular, LLDP defines a set of common advertisement messages, a protocol for transmitting the advertisements and a method for storing the information contained in received advertisements.

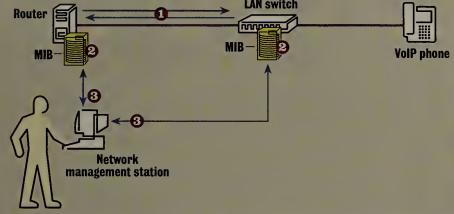
Multiple advertisement messages are transmitted in one LAN packet by the advertising device in the form of a type length value (TLV) field.

All LLDP-capable devices must support device chassis ID and port ID advertisements, but it is expected that most implementations also will support system name, system description and system capabilities advertisements. System name and system description advertisements provide useful information for collecting network inventory data. System description advertisement can contain data such as the advertising device's full name and the version identification of the system's hardware type

HOW IT WORKS

LLDP

The IEEE 802.1AB Link Layer Discovery Protocol defines a standard way for Ethernet devices to advertise information about themselves to their network neighbors and store information they discover from other devices.



- A LAN switch and router advertise chassis/port IDs and system descriptions to each other.
- 2 The devices store the information they learn about each other in local MIB databases
- A network management system retrieves the data stored by each device and builds a network topology map.

and software operating system.

LLDP information is transmitted periodically and stored for a finite period. IEEE has defined a recommended transmission rate of 30 seconds, but the transmission rate is adjustable. LLDP devices, after receiving an LLDP message from a neighboring network device, will store the LLDP information in an IEEE-defined Simple Network Management Protocol (SNMP) Management Information Base (MIB). LLDP information is stored in the SNMP MIB and is valid for a period of time

defined by the LLDP "Time to Live" (TTL) value that is contained within the received packet. IEEE recommends a TTL value of 120 seconds, but it can be set to a maximum value 65,000 seconds or a minimum value of 0 seconds. Every time a device receives an LLDP advertisement packet, it will store the information within it and initialize a timer that will be compared to the TTL value. If the timer reaches the TTL value, the LLDP device will delete the stored information. This ensures that only valid LLDP information is stored in the network devices and is available to network management systems.

The protocol lets network management systems accurately discover and model physical network topologies. As LLDP devices transmit and receive advertisements, the devices will store information they discover about their neighbors. Advertisement data such as a neighbor's management address, device type and port identification is useful for examining what devices are neighbors of each other, and through what ports they connect to each other.

The IEEE has further enhanced the value of the LLDP protocol by making it possible for other standards organizations and vendors to create custom advertisement messages. The Telecommunications Industry Association (TlA), an International Standards Organization-certified group that develops standards-governing enterprise telephony systems, is developing an extension to LLDP for use in VolP network equipment. The TIA standard will add VoIP and telephony-specific advertisement fields that provide information about VolP phones to the network and could aid in the development of a VolP E911 emergency calling service standard.

LLDP will be a useful management tool — particularly for heterogeneous networks - by providing accurate network mapping, inventory data and network troubleshooting information. It is expected that additional applications will evolve as the industry fully implements the standard.

Allen and Frattura are directors of secure networks solutions at Enterasys Networks. They can be reached at aallen@ enterasys.com and Frattura@enterasys. com, respectively.

Ask Dr. Internet By Steve Blass

We have an application on the Eclipse Rich Client Platform (RCP) that runs well in the Runtime Workbench, but we are having difficulty getting it to start outside of Eclipse.

We exported our program as a deployable plug-in and unpacked it in a clean directory, but it will not start. Are there examples of how we can make this work?

An RCP newsgroup (hosted by Eclipse.org)

offers a lot of information about overcoming the pitfalls of deploying RCP programs. There are several items that need to be copied into your deployment directory by hand after you export your plug-in, including the eclipse.exe program launcher and the startup.jar file from your development installation. You also need to copy all the plug-ins that your program depends on from the eclipse/plug-ins directory to your deployment directory.

Another good source of RCP deployment information is the mailing list at www.eclipsepowered.org, where it was recently announced that an initial version of an RCP application deployment wizard was released into the Eclipse Concurrent Versioning System repository.

Blass is a network architect at Change@Work. He can be reached at dr.internet@changeat work.com.

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Computer Associates®



Mark Gibbs

n last week's Gearhead we discussed a fabulous tool, er, utility, no, system ... well, an unusual piece of software called KlipFolio published by Serence. To briefly recap: KlipFolio is a framework for managing mini-applications scripted in JavaScript.

At the end of last week's missive, we threatened to look at building one of these applications called Klips and so, using your seat cushion as a flotation device if necessary, here we go ...

To develop Klips, first enable "developer mode" in KlipFolio. This mode provides a debug tab in the KlipFolio preferences dialog that switches the display of debugging output from Klips on and off. It also enables modal alert dialogs to display debug output and a context (right click) menu option that lets you reload Klips so that you can run the latest version immediately after editing.

To switch this on we need to add the line "<developer>true</developer>" in the <set-

Still going at a Klip

tings> section of the KlipFolio preferences file (located in the KlipFolio directory).

Next download the development kit, the developer's guide and the API specification (www.nwfusion.com, DocFinder: 4024).

Now we're ready. Using a text editor we open the template from the development kit and save it under the name we want our Klip to have. We'll call it, say, Bob.

The template is an XML description of the Klip that includes author, date, revision level. See a link to the template on Serence's Template page (DocFinder: 4025).

There's a certain amount of setup information defining the Klip's name but we'll skip to the code section. Here's an abbreviated version of the template — the entire Klip is specified within the <klip></klip> tags and the code goes in the <klipscript></klipscript> section:

<klip>

<klipscript>

<![CDATA[

Code goes here

BlackBerry

</klipscript>

To add items to our Klip panel we need

ltems.addltem (string);

The default behavior of a Klip is to enumerate the number of items added to the right of the icon (the icon is specified in the setup section) when the Klip is in its minimized form, when manually resized or when you mouse over the panel, below the icon.

So, as an example, the following code will repeatedly (depending on the refresh interval specified in the Klip specification file) display the time:

function onRefresh()

var currenttime = new Date();

var hrs = currenttime.getHours(); var min = currenttime.getMinutes();

var sec = currenttime.getSeconds();

ltems.clear();

ltems.status = '

ltems.addltem (hrs + ":" + min + ":" + sec);

The method Items.clear removes all current items from the display to ensure that there is only one line showing at a time, and setting the Items.status property to an empty string removes the count of the number of items (which would otherwise always be 1).

KlipFolio provides support for reading

RSS, Atom, XML, Resource Description Framework and HTML content, and signed Klips can access raw TCP/IP connections (Serence does the signing for free). KlipFolio also has its own object model, which can be found at DocFinder:

The only area of programming functionality that is obviously missing is support for low-level protocols such as Internet Control Messaging Protocol. Developers also can have Serence encrypt their code — a service that the company charges for.

KlipFolio is one of the most intriguing information delivery systems we've seen for a while and its potential is limited only by the relative youth of Serence — which is to say that the company's documentation and debug facilities are disappointing. In KlipFolio it is easy to build basic functionality, but when you try to be clever the documentation lets you down.

Even so, KlipFolio is impressive and reliable. We recommend keeping an eye on this unique product — it could well be the corporate information delivery vehicle you've been looking for.

Deliver you thoughts to gearhead@ gibbs.com.

Quick takes on high-tech toys By Keith Shaw

eptember was a busy travel month for us, and we were happy to have two devices along for the ride that helped us save some time, and kept us updated and connected.

The scoop: BlackBerry 7100t (with T-Mobile service), from Research In Motion, about \$200 (plus \$60 per month for data service).

What it does: The 7100t looks and feels like a mobile phone, yet also acts like a BlackBerry. Think of it as the BlackBerry for those within a company who don't travel nonstop or are high enough in the company food chain to warrant getting one of those fancier BlackBerry devices. The pricing plans and monthly service from The BlackBerry 7100t keyboard T-Mobile might be low enough for comhas two letters on each button. panies to consider who else in their organization might benefit from a wire-

less e-mail device. Those of you who've been using the teen-focused Sidekick might want to upgrade to a more professional device.

The 7100t runs on the T-Mobile GSM/General Packet Radio Service network, and has the same functionality and features of those more expensive devices. Furthermore, it looks and feels more like a phone, so it fits more comfort-

Cool Two life-saving travel tools

Why it's cool: The biggest change on the 7100t compared with other Black-Berry devices is the new keyboard. Instead of having one button for each letter, the 7100t contains two letters on each key. This is done to make the device look and feel more like a mobile phone.

Don't panic, you won't find yourself doing the "tap-tap" dance to get one letter to appear in your e-mails. RIM has done a great job with its word-recognition software, which can predict what word you're typing. Just type keys once, and the combination of keys pressed with the dictionary will figure out the word. If it makes a mistake (once, the device assumed the word "your" instead of "tour"), you can easily correct the word, and the system will learn your word preferences. We were pretty skeptical, but in hundreds of e-mails sent, we rarely found a typo.

Other than the new keypad, the device worked just like a BlackBerry, letting us keep up on our e-mails while we were on the road.

Grade: ★★★★ (out of five)

The scoop: GC-83 PC card, from Sony Ericsson (with AT&T Wireless service), about \$250 (or free with a twoyear agreement and \$80 per month service plan).

What it does: The GC-83 card provides access to AT&T's Edge network, which promises to offer average connection speeds of 100K to 130K bit/sec over a wide-area connection. The PC card connects easily to a laptop to provide a network connection, and comes with communication software that helps you manage it all.

Why it's cool: Recently we found ourselves in a location that didn't have a high-speed wired Internet connection or a Wi-Fi wireless LAN connection. Fortunately, all we had to do was pop in the GC-83 card to get connected. We didn't test hardcore performance to see if AT&T Wireless' claims of speeds were accurate, but we noticed that speeds were better than with dial-up, if slightly slower than a Wi-Fi or wired high-speed Internet connection. Several Web sites with lots of graphics seemed to take longer, reminding us of the day when we had our dial-up only access.

If you do a lot of traveling and don't know about whether your hotel will have a high-speed connection or Wi-Fi, this can be a great option or back-up plan.

Grade: ★★★★

Shaw can be reached at kshaw@nww.com.





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ON TECHNOLOGY

John Dix

Getting patching right: A debate

he controversy swirling around Microsoft's recently released Windows XP Service Pack 2 serves as a simple reminder that the patch problem remains at the core of network security.

There is no silver bullet and solutions are emerging from multiple industry areas, making it hard to figure out the best course of action. To help put it in perspective, we're challenging a batch of vendors to participate in an online Network World Virtual Showdown "How best to patch" the week of Nov. 15.

We want to hear from these vendors in three categories:

- Pure-play patch management players Shavlik and Big Fix: Vendors offering patch point products tend to be innovators. But to stay competitive companies in this sector have to expand their scope to offer more security or management features. Will it be enough?
- Server and desktop management vendors Altiris and Configuresoft: Companies in this segment argue that vendors of point products don't see enough of your assets to tell if patches will cause more problems than they solve. They also argue their products scale better and are catching up to point products in terms of features. But can general-purpose tools compete?
- Vendors that couple vulnerability scanning with patch management, Citadel, Symantec: Given patching is all about security, the security vendors argue they have a leg up because they live in the trenches. But patching is relatively new to them (Symantec bought On Technology to make a run at this), and they are playing catch-up on the management side. Do they have a chance?

Vendors need to confirm their participation by Oct. 11. We'll launch the online debate Nov. 15 with vendors' answers to questions from *Network World* Senior Editor John Fontana, Senior Writer Denise Dubie and guest expert Felicia Nicastro.

Nicastro is a principal consultant with International Network Services, a professional services consultancy. She holds CISSP and CHSP certifications and is author of the forthcoming book *Curing the Patch Management Headache*.

On Nov. 16, we'll open the forum to let the vendors question each other. This typically is the liveliest part of a Showdown because vendors know their competitors cold and can hone in on technical details that matter.

On Wednesday to Friday, we'll throw open the doors to everyone, letting readers post questions and giving the vendors a last opportunity to trade barbs.

So plan to join us the week of Nov. 15 for the launch of what should be an informative debate.

— John Dix Editor in chief jdix@nww.com

opinions!

Let's rethink BPL

Regarding the story "Broadband over power lines gaining steam" (www.nwfusion.com, DocFinder: 4022): There's a memorable line from the movie "Jurassic Park" that can apply to the BPL controversy. In the film, actor Jeff Goldblum's character explains how the scientists who are breeding dinosaurs could mess up badly and things could go so very wrong: The scientists have spent all their time seeing if they could rather than asking if they should.

Similarly, BPL vendors believe they can supply BPL but do not seem to consider whether they should. Which is why the American Radio Relay League (ARRL), representing 690,000 ham radio operators, has spent almost two years researching the BPL threat.

Besides the obvious interference from unshielded radiating lines (power lines were never constructed to carry radio frequency signals), the ARRL's biggest warning concerns what happens when the entire power grid of a city becomes one giant radiating antenna. The problems then will not be confined to amateur radio operators. Public service agencies (and possibly air traffic control towers) could feel adverse effects.

Let's put the technical aspects of BPL interference aside for a moment. The bad news is that when amateur radio operators as individuals complain, our technical arguments are such a snoozer that we put the general public to sleep. But the good news is that the economics of this technology will, in time, get us the same results — BPL will be a minor player in Internet business or disappear altogether.

We owe BPL suppliers a debt of gratitude: It's their excessive claims and overblown rhetoric about this technology that will hopefully soon make BPL the eight-track tape of Internet services.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

Know why utilities got excited about the BPL business? Because they saw a huge cash cow with little investment and an infrastructure already in place. They are finding out now the huge cash cow does not exist and the technology is not problem-free (as the experiences in Manassas, Va., Raleigh, N.C., and Cedar Rapids, lowa, show).

Know why officials such as FCC Chairman Michael Powell and politicians such as President George Bush are praising BPL? Because they have been promised this technology will easily bring low-cost broadband to rural America (voters). Well, check the rural cooperatives that have studied this or check with rural utility companies. No rural utility, that I am aware of, is going into the BPL business. The rural availability argument is simply as bogus as bogus gets. When the politicians find this out, their praise will melt and disappear.

The "Jurassic Park" movies are now history. Maybe BPL's massive promises are next.

Joe Phillips Fairfield, Ohio

Linux is larger

Regarding the story "Fired-up Ballmer zings Linux" (DocFinder: 4023): When Steve Ballmer says that Linux will be attacked as frequently as Windows when it has as large a share of the operating system market, he is failing to consider some readily available facts. Linux already has a larger share of the operating system market. Microsoft Internet Information Server has a 21% market share of the Web server market, while Linux/Apache has more than three times that. With Microsoft's minority position and Linux's market share leadership, why is it that we hear about the security issues and vulnerabilities related to Microsoft IIS and not Linux/Apache, Steve?

Mike Sheffey Santa Barbara, Calif.



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STRATEGY SESSION

Jeff Kaplan

isco's acquisitions historically have been early indicators of the company's strategic direction and bellwethers of broader industry trends. Whether acquiring companies such as Komodo Technology to build its VolP product portfolio or Linksys to enter the home network market, Cisco's deals

have been a critical component of its product development and new market-penetration initiatives. But Cisco seldom has used acquisitions to expand its support services. That is why Cisco's recent acquisition of managed service provider NetSolve is so intriguing.

Founded in 1987, NetSolve became one of the first independent providers of remote network and IT infrastructure management services in the mid-1990s. Despite surviving the dot-com crash, NetSolve has limited name recognition among enterprise decision-makers because it has sold its services primarily through indirect channels, private-labeling them to companies such as AT&T and NEC.

Cisco's acquisition of NetSolve comes at a time when industry acceptance of managed services appears to be on the rise, but NetSolve's viability at the time of the purchase was still uncertain. Nearly every analyst firm has forecast double-digit growth for managed services. Yet in July, NetSolve reported a quarterly revenue decline and significant operating losses. Much of NetSolve's problems were attributed to the termination of three reseller agreements with AT&T: for managed router services; managed DSU services sold as part of AT&T's Frame Relay Plus offering; and as part of a WAN management contract AT&T had with The Home Depot. Despite its long relationship with NetSolve, AT&T decided to

Cisco takes on managed services

deliver these managed services on its own.

Under the circumstances, it isn't hard to understand why NetSolve was happy to accept Cisco's acquisition offer. What is less clear is why Cisco decided to acquire ailing NetSolve.

Cisco has a long history of offering automated, Web-based technical support services rather than the labor-intensive field support services that have weighed down more traditional vendors such as Avaya, Lucent and Nortel. Although Cisco's competitors have invested significantly in managed services in an effort to shift their service delivery models to more economical, remote management techniques, these services haven't become a major piece of their revenue yet.

That is why the NetSolve acquisition can be seen as a typical Machiavellian move by Cisco. Rather than build an in-house managed service capability, Cisco has acquired it to quickly leapfrog its competitors, which must now either accelerate their internal build-out efforts or make their own acquisitions to remain competitive.

Cisco is betting that its strong channel relationships and experience with automated service delivery systems will let it capitalize on the growing demand for managed services. If Cisco's managed services initiative is successful, corporations can bet that other vendors and service providers will make managed services a more prominent part of their value propositions. And independent MSPs can bet that they will become more attractive acquisition candidates for the vendors and service providers playing catch-up in this market.

Kaplan is managing director of THINKstrategies, a consultancy in Wellesley, Mass. He can be reached at jkaplan@thinkstrategies.com.

Nearly every analyst firm has forecast doubledigit growth for managed services.



YANKEE INGENUITY

Howard Anderson

etwork speeds have increased from about 1M bit/sec in 1974 to 1G bit/ sec today, to a projected 100G bit/sec in 2014 and 1T bit/sec by 2020. Clearly, networks haven't peaked — we're pushing more data down our networks and using algorithms to compress it. Let's relate this

growth to American consumers in their homes. Networks give consumers choices — and one of these choices is video on demand.

Imagine for a moment that you could view your e-mail only between the hours of 8 a.m. and 11 a.m.

Furthermore, imagine you could read e-mails only in the order received, and suppose you had to stop reading and sending your email every eight minutes to view an e-mail advertisement from Bill Gates or Larry Ellison telling you what exemplary citizens they are. You would go ballistic — but that's exactly what you put up with today as a consumer.

You didn't know it, but you signed a pact with the devil — free entertainment for intrusive barrages of messages. But that's now changing as a result of both digital video recorders (DVR) and your cable company offering you video on demand. Bruce Leichtman, who used to run The Yankee Group's cable research group, predicts that by 2008, video on demand and DVRs will each be in more than 30 million U.S. households, and 15 million households will have both. Access to video on demand won't be free. The content providers and the networks need two things: a new source of revenue and some protection against the incursion of direct broadcast satellite, which currently is in about 23 million households, about half of what the cable industry has (58 million).

In addition to video on demand and DVRs, broadcasters are toying with "datacasting" — using portions of the broadcast signal for oneway video transmission — but this will require specially designed receivers or PC tuner cards. BellSouth, Verizon and SBC plan to bring fiber to about 2 million homes, which could give consumers even

Video on demand on the horizon

more choices. I recently heard about a start-up that is using technology developed by John Fanning (of Napster) to allow peer-to-peer video on demand — and built-in protection of the content, ameliorating the issue of "Napsterizing."

What will consumers do with all these options? The real question is what will programmers do, because consumers only will react to what is available. Years ago I invented a cute term — TAFFIES, short for technologically advanced families. There are a little more than 100 million households in the U.S., of which TAFFIES make up about 5% — but they are the early adopters. It's not easy selling to this elite group, but once they buy in, then the early majority (30% to 40% of the market) usually will follow. This is what marketers love — when the large numbers begin to pile on, and there is evidence that this is starting to happen. Bruce Leichtman says that last year, 45% of digital cable subscribers with video-on-demand capability bought programming up from 28% in 2002.

That's huge. There is a chicken-and-egg situation with video on demand — the infrastructure has to be built before the applications find a home. Sure, it takes about 10 years to coalesce — and in 10 years, those broadband networks will be able to handle even more programming.

I am a "West Wing" junkie — I schedule nothing on Wednesday nights at 9 p.m., rush home to watch reruns on Bravo at 7 p.m. and buy the DVDs of the show the week they come out. TiVo solves some of my problems, but not all. I want to watch the episodes before they are broadcast — and I will pay \$2 per week to be able to tell everyone what happens before it happens. For some reason, my co-workers don't believe this comes under the heading of a valuable fringe benefit.

Anderson is founder of The Yankee Group and senior managing director of YankeeTek Ventures, a Cambridge, Mass., venture capital fund for early-stage technology companies. He can be reached at handerson@yankeetek.com.

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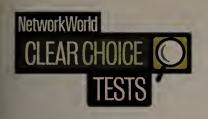
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Security picks

This was not an ordinary product test in which we picked a winner based on a range of criteria including performance, manageability and

In this case, we focused entirely on security, and based on our testing, we drew some conclusions about which products would be the most secure additions to your network.

On the client side, we recommend wireless network interface cards from 3Com and Cisco because they offer a range of security options, don't have broken Wired Equivalent Privacy (WEP) implementations and offer a clear 802.11i direction.

For access points, the decision is tougher. 3Com and SMC Networks both passed all our tests, but we also feel that Cisco, HP and Proxim — which failed the WEP tests — should be on any short list because of the additional security features they offer. Additionally, even Compex, with its small office/home office access point, had the ability to switch users to different virtual LANs, which is a great security feature.

For wireless switches, we recommend the Aruba, Airespace and Trapeze products, again, based on the variety of options offered. In corporations, these products will provide more security than any of the static access points tested.

- Joel Snyder and Rodney Thayer



WEP: Stick a fork in it

Tests show some vendors are lax about plugging WEP holes.

■ BY JOEL SNYDER AND RODNEY THAYER, **NETWORK WORLD LAB ALLIANCE**

EP is notoriously bad. We set out to find out just how bad. The most egregious issue with WEP is its lack of key management. You pick an encryption key, give it to your users and then — typically — never change that key. Anyone who can recover your key can then decrypt all WEP traffic you've sent using it, compromise the privacy of your network and get a good handle on its access controls.

Based on several years of testing WEP products, we predicted the key recovery method employed by hacker tools such as WEPCrack and AirSnort (see How we did it, www.nw fusion.com, DocFinder: 4031) would be obsolete today because there are a variety of techniques that can defeat them. This round of testing proved that assumption dead wrong (see graphic, page 48). In addition to more than 40% of the products failing our WEP-cracking test, we found that some vendors actually have moved backward, meaning newer products might be more vulnerable to attack than older products.

Most vendors — trying to explain away the fact they are shipping code vulnerable to 3-year-old attacks — argued with us when we pointed to test results that showed their WEP implementations were cracked easily Most justified their vulnerable WEP implementations by saying something akin to "if you were serious

about security, you wouldn't be using WEP." That said, we still believe it's a bad idea to ship vulnerable products.

> Although we checked with technical support regarding all products that failed our AirSnort test, only the three wireless switch vendors — Airespace, Aruba Wireless Networks and Trapeze Networks — went back to the lab and patched the holes for a retest.

AirSnort and WEPCrack aren't the only tools used to attack WEP.If you use 40-bit keys, there are tools such as KisMAC that can recover the key using brute force.

A number of the access point products we tested — including Belkin, Linksys and Netgear — have a "passkey" system, where you enter one password and all your WEP keys are generated. This technique often makes very "unrandom" WEP keys weaker than even 40-bit WEP keys.

Many vendors have built in what they call "high security" WEP, selecting keys that are longer than the industry-standard 104 bits. While that spins marketing wise, the technical point is pretty moot because trying to crack a 104-bit key with a brute force tool already will take longer than the projected life of the universe, so there is no need to go beyond that. But, on the downside, these non-standard longer keys cause interoperability issues.

So it's right to conclude that WEP is not the proper tool if you're serious about wireless security. Fortunately, most of the products we tested (all but the Linksys Cardbus wireless adapter) support better security.

WHAT WE TESTED: WIRELESS PRODUCT KEY

Listed here are the details of the 23 products that we put under a security microscope with our battery of tests

| Гуре | Vendor | Product | 802.11 flavors supported | Version | Price as
tested | Web site |
|---------------------------|-----------|--|--------------------------|----------------|--------------------|-------------------------|
| Wireless 3Com | | 3Com Wireless PC Card with XJACK Antenna | 802.11a/b/g | 1.0.0.36 | \$135 | www.3com.com |
| adapters | Actiontec | Wireless PC Card | b/g | 6.0.0.18 | \$80 | www.actiontec.com |
| | Apple | Airport Extreme NIC | b/g | 3.4.2 | \$79 | www.apple.com |
| | Belkin | F5D7011 High Speed Wireless Notebook Card | b/g | 3.50.21.11 | \$70 | www.belkin.com |
| | Buffalo | AirStationWLI-CB-G54 High SpeedWireless Adapter | b/g | 3.30.15.1 | \$80 | www.buffalotech.com |
| | Cisco | Aironet 802.11a/b/g Wireless CardBus Adapter | a/b/g | 1.0.0.305 | \$199 | www.cisco.com |
| | Linksys | WPC55AG Dual Band Adapter | a/b/g | 2.3.0.63 | \$144 | www.linksys.com |
| | SMC | SMC2536W-AG EliteConnect Universal High PowerWireless Adapter | a/b/g | 2.4.2.22 | \$95 | www.smc.com |
| Wireless | 3Com | 3ComWireless LAN Access Point 8750 | a/b/g | 2.04.51 | \$899 | www.3com.com |
| Belkin
Buffal
Cisco | Actiontec | GT701WGWireless DSL Gateway | b/g | 3.0.1.0.5 | \$130 | www.actiontec.com |
| | Belkin | F5D7230 High-Speed Wireless G Router | b/g | 4.03.03 | \$90 | www.belkin.com |
| | Buffalo | AirStationWBR2-G54 High Speed ModeWireless Cable/DSL Router | b/g | 2.21 | \$150 | www.buffalotech.com |
| | Cisco | Aironet 1100 Access Point | b/g | IOS 2.2(13)JA1 | \$499 | www.cisco.com |
| | Compex | NetPassage WPE54G-SMA Access Point | b/g | 1.10 b518 | \$150 | www.cpx.com |
| | HP | ProCurve 520wl dual radio Access Point | b/g | 2.4.5(758) | \$589 | www.hp.com |
| | Linksys | WAP54G Access Point | b/g | 2 | \$100 | www.linksys.com |
| | Netgear | WG302 Prosafe Access Point | b/g | 2.0.4RC2 | \$350 | www.netgear.com |
| | Netopia | 3347W ADSL 3-D Reach Wi-FI Gateway | b | 7.3.3r1 | \$219 | www.netopia.com |
| | Proxim | Orinocco AP-4000 | a/b/g | 2.4.11(821) | \$899 | www.proxim.com |
| | SMC | SMC 2555W-AG Wireless Access Point | a/b/g | v3.0.0 | \$800 | www.smc.com |
| Wireless | Airespace | Airespace 4000 with AP-1200 | a/b/g | 2.1 | \$12,450 | www.airespace.com |
| witches | Aruba | Aruba 800 wireless switch | a/b/g | 2.0.4 | \$2,995 | www.arubanetworks.com |
| | Trapeze | Mobility Exchange 20 switch and Mobility Point -252 Access Point | a/b/g | 2.1.3 | \$10,043 | www.trapezenetworks.com |



Testing WEP security

Support for a wide variety of WEP flavors is common in access points, wireless switches and network interface cards, but many of the products we tested are very vulnerable to the 3-year-old key recovery technique available in the AirSnort tool.

| Туре | Vendor | AirSnort results | WEP key support | Supports weak WEP passphrase feature* |
|---|-----------|------------------|-------------------------|---------------------------------------|
| Wireless | 3Com | Pass | 40-, 104-, 128-bit keys | Yes |
| adapters | Actiontec | Fail | 40-, 104-, 232-bit keys | No |
| **** | Apple | Pass | 40-, 104-bit keys | Yes |
| | Belkin | Pass | 40-, 104-bit keys | No |
| | Buffalo | Pass | 40-, 104-bit keys | No |
| | Cisco | Pass | 40-, 104-bit keys | No |
| | Linksys | Fail | 40-, 104-, 128-bit keys | No |
| | SMC | Fail | 40-, 104-, 128-bit keys | No |
| Wireless access | 3Com | Pass | 40-, 104-, 128-bit keys | Yes |
| points | Actiontec | Fail | 40-, 104-, 232-bit keys | No |
| ** | Belkin | Pass | 40-, 104-bit keys | Yes |
| *************************************** | Buffalo | Pass | 40-, 104-bit keys | No |
| | Cisco | Fail | 40-, 104-bit keys | No |
| | Compex | Fail | 40-, 104-bit keys | No |
| | HP | Fail | 40-, 104-, 128-bit keys | No |
| | Linksys | Pass | 40-, 104-bit keys | Yes |
| | Netgear | Fail | 40-, 104-, 128-bit keys | Yes |
| | Netopia | Fail | 40-, 104-, 232-bit keys | Yes |
| | Proxim | Fail | 40-, 104-, 128-bit keys | No |
| | SMC | Pass | 40-, 104-, 128-bit keys | No |
| Wireless | Airespace | Pass** | 40-, 104-, 128-bit keys | No |
| switches | Aruba | Pass** | 40-, 104-bit keys | No |
| ~ | Trapeze | Pass** | 40-, 104-bit keys | No |

^{*}No is the preferable answer.

Glossary of wireless security terms

802.11, 802.11a, 802.11b, 802.11g: Four standards for wireless LANs (WLAN), ranging in speed from 1M to 54M bit/sec. The 802.11 family is the most commonly used WLAN specification for products built for both office and home environments.

Wired Equivalent Privacy: WEP is a simple, high-speed encryption technique built into 802.11 WLANs, using 40-bit keys. Most devices available today support extended key lengths of 104 bits, which are not part of the original standard but are still highly interoperable.

802.1X: An authentication standard for wired and wireless LANs, used to identify users before allowing their traffic onto the network. It can be used in wireless environments to authenticate users for more secure WEP, Wi-Fi Protected Access or 802.11i deployments.

Wi-Fi Protected Access: WPA is an industry standard based on a subset of an early draft of 802.11i. WPA replaces WEP's keying mechanism with a more robust system, called Temporal Key Integrity Protocol (although TKIP is still based on RC4 encryption). (See full description of TKIP, DocFinder: 4032). WPA adds a strong message integrity check and allows for authentication using 802.1X.

802.11i: IEEE's standard for Robust Security Network for WLANs. In addition to all the features in WPA, 802.11i uses Advanced Encryption Standard as a replacement for RC4 encryption.

Advanced Encryption Standard: AES is the U.S. government standard encryption protocol that replaces Data Encryption Standard.

802.1X: A stepping stone

used with WLANs: It gives you per-user, persession WEP keys.

While WEP's many other theoretical problems still exist, 802.1X solves the biggest practical issue. No longer does everyone use the same WEP key that can stick around for months or even years. Instead, every connection authenticated with 802.1X gets its own WEP key that can be changed as often as the network professional controlling the WLAN desires.

s an authentication standard for wired net-

works, 802.1X has a happy side effect when

A second benefit to 802.1X is that you actually know who is on your network. Users have to go through a true authentication dialog. You can use as powerful an authentication method as you need ranging from simple username/password combinations to digital certificates.

With pure 802.1X, the heavy lifting is done on the sup-

ough a Support 80 Not every dard 802.1 ple, the Beddigital Support punation with the sup-

Overall, wireless client cards have much broader support for 802.1X than we saw in our earlier testing. In addition to 802.1X support in NICs, Microsoft has built 802.1X authentication into Windows XP, and Apple has provided it in

plicant (wireless client), with the wireless access point having very little work to do in the process. In the majority of devices we tested, enabling 802.1X at the access point is usually a question of picking one of two options — allow 802.1X or require 802.1X — and then pointing the access point at a RADIUS server that supports 802.1X. Some products are a little more flexible than that. For example, the Trapeze wireless switch lets you use 802.1X for authentication, but also has its own authentication server built into it. This can make deployment much faster, especially if your RADIUS server does not support 802.1X.

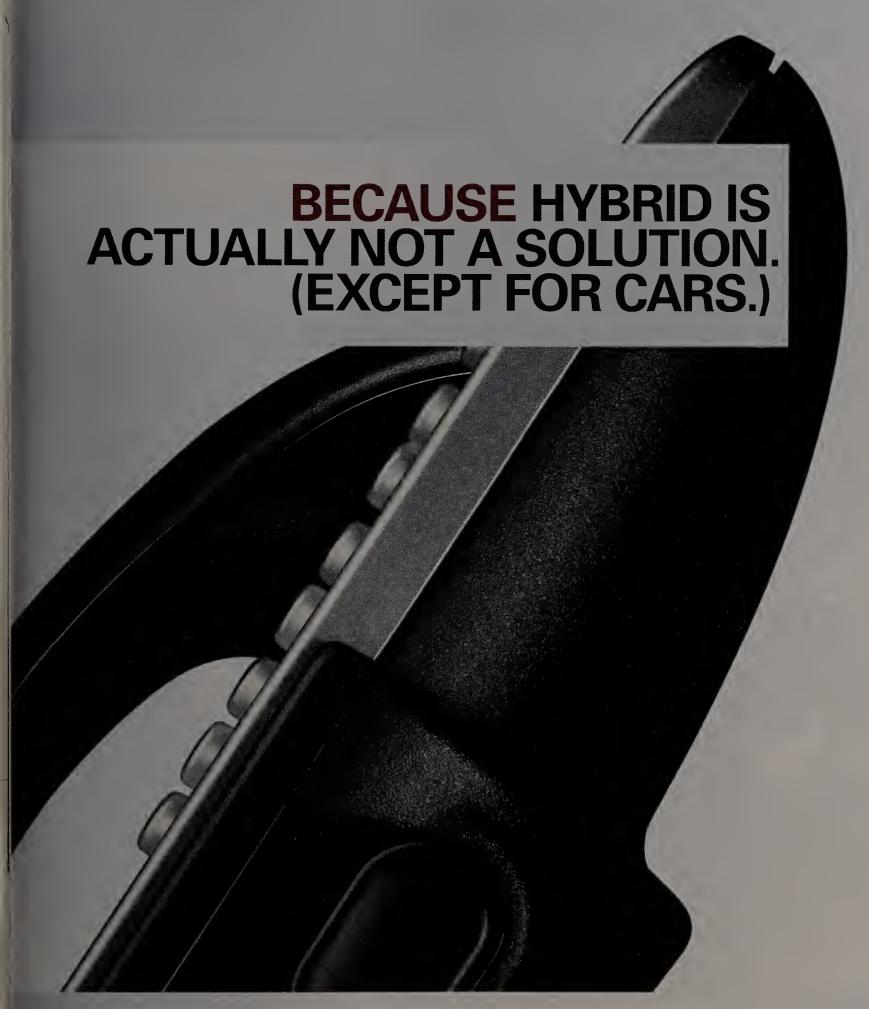
Not every wireless vendor is shipping wares with standard 802.1X support (see graphic, page 50). For example, the Belkin adapter and access point tested did not support pure 802.1X, but did support 802.1X in combination with WPA. Products from Buffalo Technology and Linksys tested did not support pure 802.1X at all.

recent versions of Mac OS X.

The difficulty in using 802.1X on a wireless client, whether it's by itself or part of WPA or 802.11i, is in finding a compatible authentication method. While not everyone in the network has to use the same method,

See 802.1X, page 50

^{**}Initially failed the test, but when we checked with support team, we were supplied with updated code.



Hybrid is as hybrid does. And when it comes to IP Communications, hybrid doesn't do much more than compromise. Hybrid doesn't do seamless failover. Doesn't do scalability. Doesn't do end-to-end security. Ditto for remote upgrades. So if it's a car, go hybrid. If, however, it's a networking and communications strategy you're driving, make sure you drive the integrated, secure, end-to-end solution: **CISCO IP COMMUNICATIONS**. **BECAUSE PHONES CAN DO MORE**. Learn more at www.cisco.com/domore.





802.1X

continued from page 48

they all have to be supported by the RADIUS server you're using.

The only common authentication denominator among the products tested is support for Protected Extensible Authentication Protocol (PEAP)with Challenge Handshake Authentication Protocol (MSCHAPv2), an encrypted authentication method based on Microsoft's challenge/response authentication protocol.

Unfortunately, PEAP/MSCHAPv2 won't work for networks that employ pre-encrypted user passwords. For example, if you keep your passwords on a Unix server in /etc/password format, you can't use MSCHAPv2. The solution is to either use an authentication mechanism such as Tunneled Transport Layer Security/Password Authentication Password (TTLS/PAP) (which works with encrypted passwords), or jump to a different authentication method, for example, digital certificates. Digital certificates are supported by all of the 802.1X clients we tested.

Although TTLS/PAP was not widely supported outside of the 3Com and Apple clients we tested, there are addons for Microsoft's Windows clients, such as Funk Software's Odyssey 802.1X client or Meetinghouse Data

Tracking WLAN product support for pure 802.1X authentication methods

Although 802.1X allows many authentication methods, the one most consistently supported is PEAP with MSCHAPv2. While pure 802.1X support is widespread in the other access points and wireless switching systems tested, the role of those products in the 802.1X handshake is to simply act as an intermediate point inside the tunnel between supplicant and authentication server. The authentication method used is irrelevant to the access point (although some access points do restrict the types of authentication allowed).

| Product
type | Vendor | MD5 | TLS | PEAP/
MSCHAPv2 | PEAP/
GTC | TTLS/
PAP | TTLS/
MSCHAPv2 | TTLS/
CHAP | TTLS/
MSCHAP | LEAP |
|-----------------|-----------|-------------|-----|-------------------|--------------|--------------|-------------------|---------------|-----------------|------|
| | 3Com | | Yes | Yes | | Yes | Yes | | | Yes |
| | Actiontec | | Yes | Yes | | | | | | |
| | Apple | Yes | Yes | Yes | | Yes | Yes | Yes | Yes | Yes |
| | Cisco | ATTENDED OF | Yes | Yes | Yes | | | | | Yes |
| | SMC | | Yes | Yes | | | | | | Yes |
| Switch | Trapeze | Yes | Yes | Yes | | 1 | | | 1 | |

Communications' Aegis client, which bring that support to the table.

Although 802.1X by itself is pretty secure you get your best wireless security when you combine 802.1X with an

encryption system that is stronger than simple WEP.Other security mechanisms — such as WPA and 802.11i — build on 802.1X encryption as one piece of a bigger framework for securing wireless connections.

WPA: An accident waiting to happen

PA is an industry specification the Wi-Fi Alliance pushed into adoption. This cooperative of wireless manufacturers — worried that WEP would stall sales — took an early draft of the IEEE 802.11i wireless security standard, pulled out some harder-to-

implement pieces, such as AES encryption, and created WPA. Vendors shipped certified WPA products just five months after announcing the specification. WPA enhances security in several ways. The most

WPA enhances security in several ways. The most obvious is in the encryption protocol. WPA uses TKIP to improve the key usage in wireless encryption. Although TKIP uses the same base encryption algorithm — RC4 — as WEP, the way it selects and changes keys resolves many of the issues surrounding WEP. WPA also improves the integrity aspects of 802.11 by making it virtually impossible to inject messages into a wireless conversation or to modify a message on the fly.

The primary improvement in WPA is the persession encryption key. Every time a station associates, a new encryption key is generated based on some persession random numbers and the media access control (MAC) addresses of the station and the access point. WPA sounds like a major improvement, and it is — if it's used correctly.

Unfortunately, the easiest way to use WPA actually makes it easier to crack than WEP. When 802.1X authentication is not used in WPA, a simpler system called Pre-Shared Key (PSK) is. PSK offers a long-lived password that everyone who wants to connect to the WLAN has to know. All the wireless devices we tested with the exception of the Linksys adapter card support WPA-PSK (see graphic, page 52)

With WPA-PSK, if you don't make your password long, you're susceptible to an offline dictionary attack where



an attacker grabs a few packets at the time a legitimate station joins the wireless network and then can take those packets and recover the PSK used. An attacker can get what he needs to guess the PSK and get out without anyone noticing. This can occur because the attacker doesn't have to be near the WLAN for more than a few seconds, and the LAN doesn't have to be very busy.

Of course, this type of attack depends on people choosing poor passwords. So if you force users to type in a 64-digit hexadecimal number when they configure their wireless connection information, then you are covered. But most folks use the passphrase mechanism built into WPA, which converts an eight- to 63-character string

you type in to the 64-digit key. More than half of the products we tested only let you enter a passphrase — you can't put in the 64-digit hex key even if you wanted to

The innate problem is that a passphrase is easy to guess. The IEEE committee that wrote 802.11i pointed out that an eight- to 10-character passphrase actually has less than the 40 bits of security that the most basic version of WEP offers, and says that a passphrase "of less than about 20 characters is unlikely to deter attacks."

As with WEP, wireless cracking tools exist that are specifically designed to recover the PSK from a WPA-protected network. We used the KisMAC tool to demonstrate that an eight-character PSK can be recovered using off-the-shelf tools against any product using such a short password with only a few days of work.

WPA with 802.1X authentication — sometimes called WPA-Enterprise — yields a very tight network. 802.1X offers strong positive authentication for both the station and the WLAN infrastructure, while deriving a secure, per-session encryption key

that is not vulnerable to any casual attack. This security comes with a cost because 802.1X authentication requires a significant infrastructure including 802.1X-compliant RADIUS server with a digital certificate, and client software for every user that supports 802.1X and whichever authentication mode you use.

If you're looking for the best wireless security you can get today, 802.1X authentication combined with WPA's improved encryption is the closest thing we've got to an ideal solution. Finding good products at all prices that combine 802.1X and WPA is not difficult. However, WPA-based products should give way quickly as more 802.11i-based products hit the marketplace this fall.

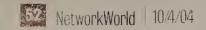


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Tracking support for various WPA authentication methods

Wireless access points and switches have almost unanimous support for both WPA pre-shared keys and 802.1X authentication methods. But on the client side, the wireless NICs tested varied considerably on this point with PEAP/MSCHAPv2 standing as the lowest common denominator.

| Product type | Vendor | Supports WPA
Pre-Shared Key | 802.1X authentication methods supported in conjunction with WPA |
|------------------------------|-----------|--------------------------------|--|
| Wireless
adapters | 3Com | Yes | LEAP, Serial authentication, EAP-TLS, PEAP/MSCHAPv2, TTLS/PAP,TTLS/MSCHAPv2 |
| | Actiontec | Yes | EAP-TLS, PEAP/MSCHAPv2 |
| | Apple | Yes | TTLS/MSCHAPv2,TTLS/MSCHAP,TTLS/CHAP,TTLS/PAP, LEAP,TLS, MD5, PEAP/MSCHAPv2 |
| | Belkin | Yes | EAP-TLS,TTLS/PAP,TTLS/CHAP,TTLS/MD5,TTLS/MS-CHAP,
TTLS/MS-CHAPv2, LEAP, PEAP/MS-CHAPv2,TLS, MD5 |
| | Buffalo | Yes | Not supported |
| | Cisco | Yes | EAP-TLS, PEAP/GTC, PEAP/MSCHAPV2, LEAP |
| | Linksys | No | Not supported |
| | SMC | Yes | TLS, PEAP/MSCHAPv2 |
| Wireless
access
points | Vendor | Supports WPA
Pre-Shared Key | Supports WPA used with 802.1X* |
| | 3Com | Yes | Yes |
| | Actiontec | Yes | Yes |
| | Belkin | Yes | Yes |
| | Buffalo | Yes | No |
| ~ | Cisco | Yes | Yes |
| | Compex | Yes | Yes |
| | HP | Yes | Yes |
| | Linksys | Yes | Uses proprietary authentication system |
| | Netgear | Yes | Yes |
| | Netopia | Yes | No |
| | Proxim | Yes | Yes |
| | SMC | Yes | Yes |
| Wireless | Airespace | Yes | Yes |
| switches | Aruba | Yes | Yes |
| | Trapeze | Yes | Yes |

^{*}While WLAN clients must support specific 802.1X authentication methods, the wireless access points and the switches merely have to support the authenticated tunnel.

802.11i: The next big thing

he IEEE standard called Robust
Security Networking is a force to be reckoned with. As an amendment to the original 802.11 WLAN standard, 802.11i replaces the original meager 10-page WEP discussion with more than

200 pages of detailed protocol on how to lock unwanted users out of your wire-

less network.
This is the good stuff.

Approved in July, 802.11i products have started to



appear in the market. Even though we received our test equipment before the final draft of the standard was ratified, 3Com, Airespace, Belkin, Buffalo, Proxim, SMC and Trapeze all had some pieces of 802.11i included with the hardware we tested.

The primary difference between the final version of

802.11i and the scaled-down version that the Wi-Fi Alliance published as WPA is AES. As a streaming encryption algorithm, RC4 (used in WEP and WPA)

See 802.11i, page 56

Security standards aside, lock down your boxes, boys!

o build a secure wireless network, it's not enough to watch the airwaves. You must lock down the access points, much like the rest of your network infrastructure. Network World Lab Alliance partner Rodney Thayer of Canola Jones conducted a penetration test on the wireless infrastructure devices (access points and switches) we tested. Particularly, we were looking to assess how the vendors protect the point at which the wireless device hits the wired network. We left the devices as close as possible to the recommended default configuration. In cases where Thayer criticizes a default setting but the vendor offers an option to make conditions more secure (such as changing from HTTP to Secure-HTTP), he noted this in the report.

lt's clear from this testing that most devices arrive out of the box with a poor set of security defaults. Many access points don't have the option to disable low-security services, such as Telnet and HTTP, and enable higher security services, such as Secure Shell and HTTPS.

Thayer says most vendors opt for simple, rather than secure, defaults. For example, while few people manage wireless access points from a command-line interface, Actiontec ships its access point with Telnet enabled using a default password anyone can guess (it's the same as the username), which cannot be changed or disabled from the user interface. That's a pretty huge hole, even in the relatively lowend market Actiontec targets.

Thayer took steadier aim at enterprise-class access points built on more sophisticated platforms, such as HP and SMC, which left open debug ports from the real-time Wind River VxWorks operating system both use in their shipping products. While there might not be any known VxWorks exploits this week, this doesn't mean there won't be any next week.

Even vendors that have a clear focus on enterprise-class security, such as Aruba and Airespace, have been sloppy with their management defaults. Both let you be as secure as you want eventually, but start you out of the box wide open. Trapeze, another security-focused vendor, has a more haphazard take: It forces you into HTTPS management, but still lets you leave the password blank. That just does not follow good security practice, even if it's a default setting.

More online!



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is the white Australia 454 f. M. T.



How to do it: Securing your wireless LAN

e're left with the question: How do you secure your WLAN?

If you are starting from scratch and have no legacy equipment to contend with, the answer is to use WPA with 802.1X authentication and plan a migration to 802.11i when equipment becomes readily available.

You won't pay a premium to use 802.1X. It's free and built into Windows XP and Apple's Mac OS/X. Picking gear that supports 802.1X and WPA is just a matter of looking for the Wi-Fi Alliance WPA-Enterprise sticker. You'll also need a RADIUS server that supports 802.1X authentication.

As an alternative to WLAN-based encryption that WPA and 802.11i offer, you can use IPSec, especially if your network includes a strong IPSec remoteaccess solution.

From a security standpoint, IPSec offers a stronger model than WPA, but the differences are unlikely to be applicable to anyone outside the military IPSec also has its own costs, mainly tunneling overhead could cause performance problems in a high-speed environment.

You also can layer a simple VPN protocol, such as Point-to-Point Tunneling Protocol (PPTP), on top of your wireless connections that only support WEP natively. The benefits of PPTP (or any VPN protocol) over simple WEP are authentication and a second layer of encryption. PPTP has a much weaker security model than IPSec, but has been very well supported in all laptop operating systems for more than five years. The likelihood you'll find a device that cannot do WEP plus PPTP is fairly low. The alternatives, such as pure IPSec or IPSec over Layer 2 Tunneling Protocol, are attractive from a security point of view, but not from an interoperability and ease-of-use point of view.

An issue that spans both LAN-based wireless encryption and tunneled VPN deployments is the need to support legacy equipment. There are millions of wireless cards that barely can handle WEP, and have little or no hope of supporting a more sophisticated authentication protocol such as 802.1X.

The issue is compounded by some technical incompatibilities between WEP and WPA

If you're looking for a smaller deployment of just a half-dozen access points, for example, you'll either have to find an access point that can handle multiple security profiles on the same radio, or go with one that has two separate radios,

such as the HP ProCurve 520wl we tested. Or, in the worst case, put in two access points everywhere.

Some high-end products, such as the WLAN switches from Airespace, Aruba and Trapeze, can handle having WEP, 802.11i and even unencrypted traffic without having to install two sets of wireless access points across the network.

If you've got one or two special legacy cases that must have access to the wireless network — such as a printer or data collection device that won't do anything more complicated than WEP — you should consider placing this device on a separate wireless network and enabling MAC-based authentication.

The last deployment complication lies with accommodating guest users. These are typically folks who might be in your building and need wireless service, but



who you might not want to bother securing. Many wireless devices specifically support guest access, shuttling unauthenticated or unencrypted traffic to a specific virtual LAN, which, presumably, you would place well outside your corporate network. In addition to

Airespace, Aruba and Trapeze, this guest user allowance occurred in 3Com, Cisco, Compex, HP and Proxim access points.

You also might want to run guest users through a simple Web-based authentication process before letting them off the wireless network (and possibly onto your wired network if you're not tracking them carefully) to help differentiate between legitimate guests and those wandering around your parking lot. Depending on how complex a security model you need to support, you might want to drop in a simple firewall that supports Web authentication or one of the more sophisticated logging systems from ven-

dors such as ReefEdge Networks and

Tools, not standards, that help tie down wireless nets

Any discussion of wireless

security would be incomplete

without mentioning that buga-

boo of network professionals

— the rogue access point.

ecurity standards aside, wireless gear vendors are peppering their products with other features that can help secure WLANs, including access controls, VPN technologies and tools to locate and lock out rogue users.

One of the most common security features of the access points tested was MAC-based access controls. 3Com,

Actiontec, Airespace, Aruba, Buffalo, Cisco, HP, Netgear, Proxim, SMC and Trapeze all support this feature. To use these controls, you need to know the Ethernet address of every wireless card that will connect to your network. It might seem tedious, but it helps defend against casual attackers.

MAC-based access controls come in two flavors. Access points designed for home use force you to keep a static

list of MAC addresses on the access point. This technique has become popular enough that access point and wireless switch vendors have scaled this technique so that multiple access points can look up the static MAC address in a RADIUS server to see if it's allowed on the network.

Access control of the second sort comes in built-in firewalls shipped as part of an access point. Some access points, such as 3Com's WL-450, do a very simple type of packet filtering, primarily designed to keep garbage such as IPX routing broadcasts off your WLAN. Others have a more sophisticated set of packet filters for access controls. For example, the Airespace switch and the

Buffalo, Cisco, HP and Proxim access points all let you control access up to the IP level. For serious firewalling, Aruba packs a full, stateful firewall into its wireless switch equipment.

Vernier Software.

Trapeze's access controls apply to the actual authenticated user. Most products define controls based on which WLAN you are on, so all users on that LAN get the same access list. However, Trapeze actually ties the IP access list to authenti-

cated users, so your access list is defined based on your authentication information.

If you'd rather use IPSec, both Aruba and Airespace have VPN tunnel servers built into their wireless switch hardware. Of course, you don't have to build the IPSec tunnel to the wireless access point or switch — as all the other access point vendors were quick to point out. You always can put a sep-

arate VPN device next to the wireless network.

However, when you do that, you lose some of the advantages of an integrated tunnel server, such as a very tight binding between the wireless client and the IPSec tunnel, and a simpler network topology if you have many points of connection between the wireless network and wired network.

There are situations where encryption isn't important, but authentication is, such as in a wireless hot-spot setting. Vendors have addressed this issue with a simple technique. No matter where the user wants to go, you redirect him to a

See Tools, page 56



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802.11i

continued from page 52

was not designed for use in packet-oriented Ethernet environments because packet-oriented transmission has to "restart" RC4 at the beginning of each

packet, a process that can lead to a variety of attacks. AES resolves those

The Wi-Fi Alliance has expanded the WPA program by publishing a subset of 802.11i as WPA2. Early in September, it announced that products from six manufacturers had been certified for WPA2 compliance. These manufacturers include Atheros, Broadcom, Intel and Realtek, four of the most significant manufacturers of the wireless chips that make up everyone else's cards, access points and laptops. Based on this early

adoption, we can expect an explosion of 802.11i-compatible products, as vendors that already have modern chipsets from these manufacturers in current products will be able to turn on 802.11i compatibility without swapping out

Like WPA, 802.11i includes 802.1X authentication as a core feature. But the same authentication caveat as with WPA applies; PSK authentication is a poor choice for network security and is highly vulnerable if the PSK is not long and changed frequently enough.

Tools

continued from page 54

Web page where he has to input his credentials. In addition to a host of vendors that make external devices to handle that type of authentication, such as Vernier and ReefEdge, Airespace and Aruba build this feature into their switches.

Any discussion of wireless security would be incomplete without mentioning that bugaboo of network professionals — the rogue access point. Several products we tested, including access points from HP and Proxim and switches from Airespace and Trapeze, offer a variety of features to detect and report on rogue access points on your network.

Aruba raises the bar on managing rogue access points with its Wireless IDS feature, designed to not only detect rogue access points and certain types of wireless hacker tools, but also to ensure enterprise standards for wireless deployment are being followed (such as channel number assignments and encrypted data). Aruba even offers a remediation option: If you see an access point with the wrong Service Set Identifier, the switch will isolate it from the network by keeping stations from being able to associate to it.

RW Lab Alliance

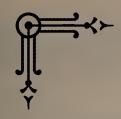
Snyder and Thayer also are members of the Network World Lab Alliance, a cooperative of the premier testers in the network industry, each bringing to bear years of practical experience on every test. For more Lab Alliance information, including what it takes to become a partner, go to www.nwfusion.com/alliance. Other members: Mandy Andress, ArcSec; John Bass, Centennial Networking Labs, North Carolina State University; Travis Berkley, University of Kansas; Jeffrey Fritz, University of California, San Francisco; James Gaskin, Gaskin Computing Services; Greg Goddard, EDS; Thomas Henderson, ExtremeLabs; Miercom, network consultancy and product test center; Christine Perey, Perey Research & Consulting; Barry Nance, independent consultant; David Newman, Network Test; Thomas Powell, PINT.



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Management

Implementing ITIL

The state of Michigan's gradual rollout of ITIL's best practices has eased growing pains.

■ BY JOHN COX

How do you convince your network and IT professionals to adopt "best practices" when they think they already have them? Simply, selectively, realistically and patiently, says Robert McDonough, IT manager for process development and support for the state of Michigan in Lansing.

"There's only so much change you can inflict on folks at any one time," McDonough says.

Last January, the state's 2,000-person IT department began using parts of the IT Infrastructure Library (ITIL). ITIL is a set of best practices meant to ease IT management pain by creating uniform, well-documented processes for tasks such as problem identification and resolution, hardware or network changes, software updates and disaster recovery.

But ITIL lacks a set of best practices for its own adoption, so McDonough's team worked out their own.

"We were trying to change the culture," he says. "We started out with the idea of learning a common language [for IT processes]. That let us insert ITIL in a manageable way."

Cataloging change

"Too often, IT departments become their own worst enemies," McDonough says. "Something breaks and we fix it, and then that fix breaks something else. We wanted to formalize the process so we're not trying to upgrade a server at the same time someone else is trying to back it up."

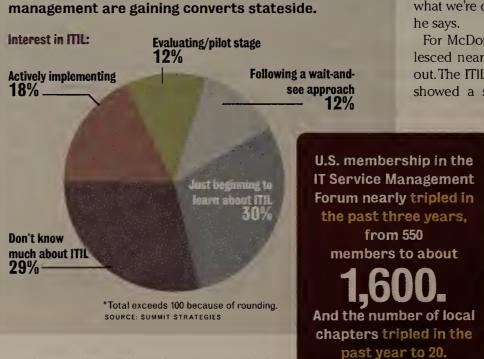
The Michigan team found in one case that on-call staff were repeatedly — albeit promptly and efficiently — fixing a server that consistently lost connectivity during the night, which pushed up the state's overtime bill. But because there was no consistent way to capture this data and identify a persistent problem, the root cause of the disconnections was never addressed.

ITIL-based problem resolution identified the cause and created a permanent fix. The state is saving thousands of dollars just in this one case, McDonough says. As yet, there's no overall savings estimates, but ITIL has dramatically reduced the number of changes gone bad. All changes now are scheduled and visible, and changes are only approved if they have a "back-out plan" — a process for restoring the system to its original state if the change fails for any reason.

Because ITIL focuses on best practices, it lends itself to an approach of small steps. One of McDonough's first small steps was forming a cross-disciplinary team of IT workers. The goal was to create what he calls a "consistent baseline" - a standard description of the current processes in the IT department. He focused on incidents or events that affect the quality of a given IT service, such as e-mail, and on problems, which ITIL defines as a recurring incident patterns.

"ITIL will say, Here are the best practices for organizing this process, here's what you need, who you need, and here's how information should flow between the various

people and groups," says Jean-Pierre Garbani, vice president at Forrester Research. "You can start with this and ITIL adoption Long used in Europe, ITIL best practices for IT service



then adopt or adapt ITIL to other processes in the

The ITIL terminology gave the Michigan team a common language and set of concepts, which was the foundation for the next step: looking at the gap between current practices for a given process and those ITIL recommends.

Adopting ITIL calls for realism and diplomacy. "You're asking someone to work differently," says Loy Allen, leader of global infrastructure services consulting for Perot Systems. "This isn't just about processes and tools, but the people who use them. That's almost always the most challenging part."

To deal with that challenge, McDonough's group came up with the idea first of "ITIL Lite" and then "ITIL Ultralite." In both cases, the idea was to take the ITIL elements most relevant to the state IT group's challenges — incident, problem and change management. "We wanted to avoid push back," McDonough says.

So for example, instead of collecting all the data for an ITIL "problem record," the Michigan record has just three parts: description of the incident, results of the root cause analysis and the proposed solution. Rolling out Ultralite went smoothly, and the team has added more elements so that the IT department is now almost at the Lite version. This brings in a greater emphasis on configuration management.

High-level help

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Winning high-level support is a vital part of a successful

and sustained ITIL implementation, says Steve Day a business development manager at Pink Elephant, an ITIL consultancy. "We get the executives in a room on Day 1 and tell them what we're doing, and why, to get their buy-in,"

For McDonough, that level of backing coalesced near the end of the three-month rollout. The ITIL team built some Web pages that showed a status board of all IT incidents

reported, the completed and

pending responses, and the status and schedule of all changes. These pages are the heart of the ITIL-inspired daily 7:30 a.m. conference call. "A lot of problems can be resolved right there," Mc-Donough says.

Operations staff select a subset of the key changes that need to be seen by executive management outside the IT group and move these to a separate Web board, with summaries written plainly for a non-technical audience. Sometimes, that

audience includes the governor.

Persuading IT to embrace ITIL can build on existing strengths in existing processes and professionalism. "There is no view in the ITIL community that 'it's all ITIL or nothing," says James Kerrigan, business development manager for FoxIT, a consulting company that also specializes in service management. "Strong existing processes can be plugged into lTIL."

So can strong IT staff. "These folks are very interested in delivering good service to their clients," McDonough says. "Telling them 'you guys aren't doing a good job' just won't cut it. You sell ITIL in those terms: to bring better value to the client or customer"





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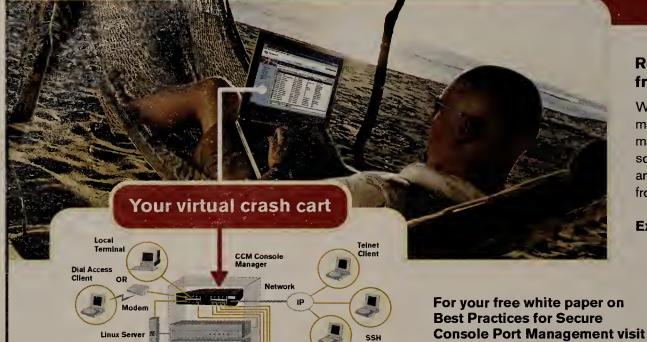
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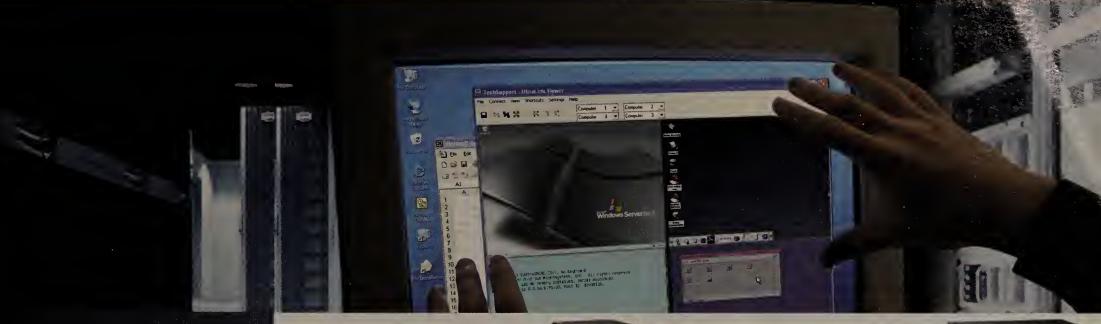
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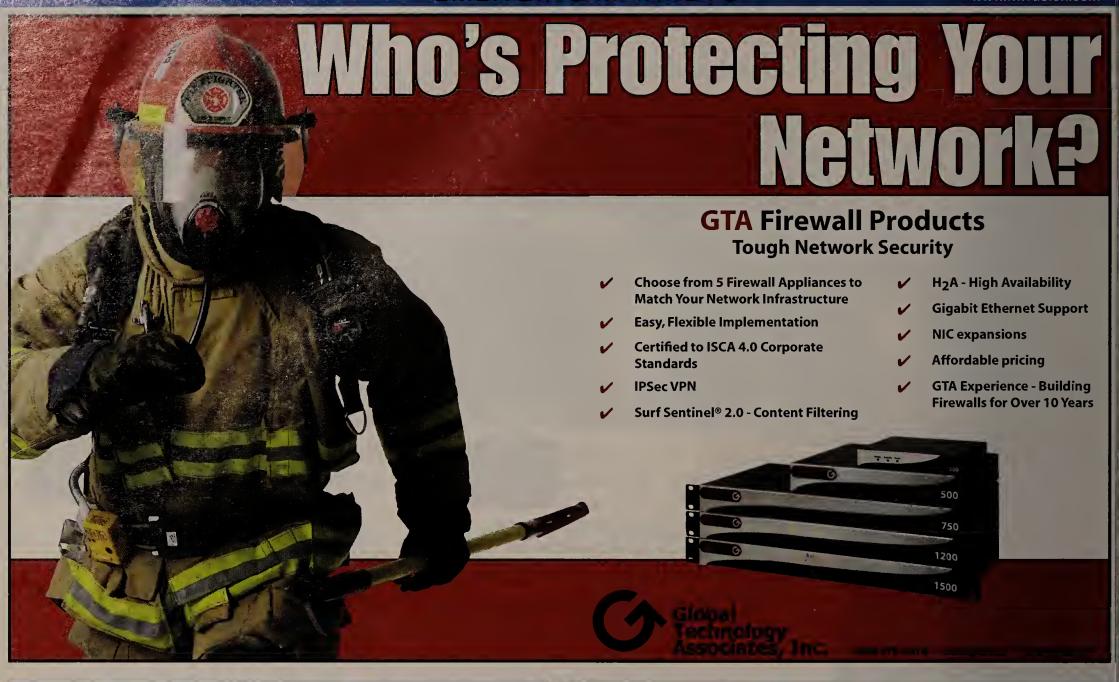
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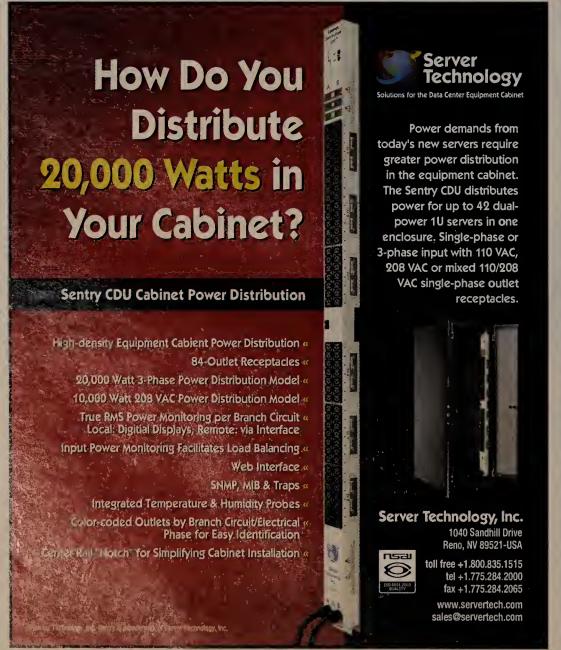


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IT Careers: ITAA Report Pinpoints 2004 Hiring Trends

f it feels like there's even more competition for even fewer jobs, you're right. According to the 2004 Workforce Development Survey from Information Technology Association of America, hiring managers will recruit just under 230,000 IT professionals this year. That's down from 2003 when 500,000 IT workers were hired with a net increase of approximately 200,000 new jobs.

The ITAA report echoes the latest forecast from tech hiring firm Robert Half & Associates. The Robert Half survey of 1,400 chief information officers reports a fourth-quarter hiring increase of 1%.

Despite the continued trend of holding the line on cost and productivity, the 500 hiring managers polled by ITAA in its annual survey did have sound advice and data to help IT professionals look at their own career plans.

What's Driving the Hiring

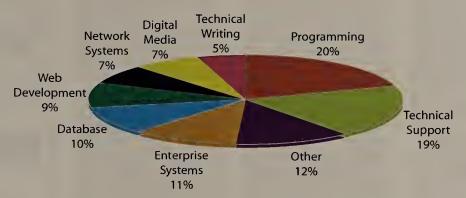
Varied trends are driving the hiring for 2004. They include the opening of entirely new markets for IT products and services. Opening India, China, Africa and other countries to technologies will require newly defined products that meet requirements for harsher environments - from lack of electricity to illiteracy. At the same time, there are strident requirements on cost as the developing countries need technology that's inexpensive

and easily used. Other trends, identified by ITAA, include the need to push technology to do more for business and for everyday living, new quality and value expectations, methods to simplify increasingly complex capabilities, and new demands for national and business security.

What They're Looking For

According to the ITAA report and despite repeated focus by CIOs on a blend of educational and business capability, the most important requirements for landing a job in 2004 are related job experience and a four-year degree. The hiring managers also identified certifications and other on-going learning as tickets to consideration. For the first time, the managers also pointed to interpersonal skills as critical in landing a job - more important, in fact, than team building and program leadership.

*2004 IT Workforce: Job Categories as a Percentage of Total IT Workforce



Specifically, software programmers and engineers continue to make up the biggest segment of the job market. However, the largest increases in hiring come in other areas technical support, network systems, and database development and mining. The hiring managers report that tech support, long the focus of outsourcing, instudes everything from call center support to installation of new equipment and systems to replace aging technology.

Where the Jobs Are

Just as important as the right mix of skills and personality is the ability to go where the jobs are. The ITAA workforce survey found that hiring and IT populations continue to move across the country, bridging the two coasts.

The South, as a region, has the most IT workers with 3.1 million. In 2004, companies in the South expect to hire 71,199 additional IT professionals. The Midwest follows closely with hiring managers planning to bring on 60,413 workers.

> While the geographic mix is fairly strong, so too is the mix of types of businesses and services that are hiring. According to the ITAA survey 72 percent of the jobs will be found in small business versus mid-sized or large companies. And just under 80% of the jobs will be in non-IT companies.

> *Source: ITAA "Adding Value...Growing Careers Annual Workforce Development Survey," 2004

For more information about IT Careers advertising, please call: 800.762.2977

Produced by Carole R. Hedden

SENIOR WEB DEVELOPMENT ANALYST

ADT Security Services, Inc. has an opening in Boca Raton, Florida for a Senior Web Devel-opment Analyst.

Analyze business procedures and problems to develop specifications and convert them to programmable form for electronic data processing. Confer with organizational units involved to determine specific web output requirements. Study existing data systems to evaluate effectiveness and develop new, or modify current, web systems to improve production workflow.

Must possess at least a bache lor's or its equivalent in Comput er Science or a related field, and relevant work experience. Ex-perience must include Oracle SQL and WebSphere Adminis-

Resume and/or cover letter must reflect each requiremen above and specify reference code SWDA/ZHS or it will be

Forward resume to Theresa Maia, ADT Security Services, Inc., One Town Center Road, Boca Raton, FL 33486.

Tryarc LLC has openings for Software Engineers in CA w/ at least 2 yrs of exp. Job Duties: Analyze, dvlp, dsgn, test and implmt software applns using Eclipse, VSS, ANT, XDoclet JSP, EJB, WebLogic, Tomcat CVS, Oracle and Rational Rose on Windows platform, and Struts Framework based on multi-tie and MVC architecture. Reqs Master's degree or equiv. ir Engg. or Comp. Sci. A bache-lor's degree with at least 5 yrs of exp. is acceptable. Exc pay & penefits. Fwd resumes with proof of work status to: obs@tryarc.com. Software Engineer, Portsmouth, NH: Design, develop, test and document EAI, B2B, B2C and Windows Applications utilizing ASP.NET, VB.NET, C#, Biztalk Server 2002, Attunity Connect, Commerce Server 2002, Content Management Server 2002, Java, JSP, JavaScript, VBScript, Visual Basic, XML, XSL, DHTML, HTML, COM and DCOM in Windows 2000 Server and Unix environment. Analyze user requirements and write design specification documents. Utilize SOAP, XML/XSL techniques for EAI Applications. Write Stored Procedures and Triggers. Perform data migration, schema design and create database objects in databases such as Oracle, SQL Server and AS/400. Assist in the preparation of technical manuals, oversee custom installation of software products and provide technical support. Masters or Foreign Eqvlt. in Comp. Science or Engg or Related and one year of exp. in the job offered. \$83,500/-yr, gam-6pm, 40hrs/wk. Send two copies of resume/letter of application to Job Order # 2004-445, PO Box 989, Concord, NH 03302-0989.

SAP Business Systems Analyst. Thomson, Inc. is seeking an SAP Business Systems Analyst to consult with clients regarding SAP software systems, provide SAP analysis, redesign, and configuration of clients' business procedures, policies, and processes, and act as liaison between the application developers and the business community to define business and system requirements. Must have 4 years of experience in SAP consulting and configuration. Send cover letter and resume to: Betty Moreno-Silva, Manager, Human Resources, Thomson, Inc., 3233 East Mission Oaks Boulevard, Camarillo, CA 93012. Please reference Job #AMM in your cover letter.

Omnisoft, Inc.,

Omnisoft, Inc.,
Software Engineers: Research, design, develop, analyze, test, and recommend software requirements for E-commerce database applications as well as develop and perform database maintenance for automobile and insurance industry clients. Use object-oriented programming using Oracle, Java, Perl, XML, Solaris, Web logic, C++ and current Web Technologies in Windows, Unix, and Linux environments. Need Bachelor's Degree in Computer Science or related and 2 years of experience. Programmer Analysts: Design and develop Enterprise Resource Planning, Customer Relationship Management, ASP, Datawarehouse applications. Use current web technologies, web services, Stored procedures and SQL. Work in Unix Environment and Unix Schell Scripting. Need 2 years of experience in relevant field.

Send resume to: HR Manager, Omnisoft, Inc., 2215 W. Russell Ave. Sioux Falls, SD 57104 or via e-mail at: hr@omnisoftinc.net

Programmer Analyst – Java:

Wanted by an IT consulting firm in Keene, NHto work at various client locations throughout USA. Respond to HRD, Infowave Systems, 39 Central Square, Suite #201A, Keene, NH-03431

Requires: Bachelor Degree in Computer Science or related field and one year experience. In the alternative will accept applicants with three years of university level education plus three years of experience performing analysis, development and testing of enterprise web applications. Primary experience must incl working with technologies such as J2EE, XML suite, BPMS, Shell scripts, RDBMS Design, Development and Tuning, Middleware on UNIX.

NE OH Software. Co. seeks Software Eng. I to assist w/in designing/ developing computer sys; apply principals and tech. of computer science, engineering, and mathematical analysis; analyze software req. to determine feasibility of design and to customize Web and Workflow Solutions at different customer sites. Design sign and to customize web and Workflow Solutions at different customer sites. Design /implement customer solutions utilizing the application package developed with technology such as OnBase API, VB, JavaScript and Crystal Reports. Bachelor's degree in Information Systems or equiv. and 3 mos. exp. in job / job related req. exp. must include work with Visual Basic/VB .net programming exp. req.; ASP/ASP .net exp.; SQL (Oracle, Sybase, DB2, MS Access, MS QL Server), HTML, JavaScript, ASP, PHP, Korn Shell Script, UML req. Resumes: H.R. Dept., TH 04, 28500 Clemens Road, Westlake, OH 44145 or email to nova.slusa@onbase.com. No calls. EOE.

Oracle Clinical Consultant to plan, design study in Oracle Clinical 4.0; develop DCMs, remote data entry screens, DCIs etc; design, develop validation procedures using PL/SQL in Oracle Clinical's validation module; develop SAS, SQL views using TOAD, SAS, Oracle Clinical; perform CRF designing, database building, randomization, query resolution, reporting, subject randomization algorithms using Oracle Clinical, Normlab, SAS, SPSS, Adobe Framemaker. Require: MS in CS, Computer Engg or Statistics and 6 months exp in Oracle Clinical, SAS. Competitive salary, F/T, travel involved. Resumes to: Scott Bryant, Judge Technical Services, Inc. 3 Davol Square, Suite 3A, Providence, RI 02903.

IT PROFESSIONALS

Manager

(Glen Mills, PA and other locations throughout the United States). Perform applications development and systems integration work utilizing Oracle E-business suite, middle ware technology and third party systems, including Web Application, Data Warehouse and legacy systems for major corporate clients in diverse industries. Engage in Software Evaluation, process reengineering, vendor planning, conceptualizing, and envisioning advanced technology solutions to meet the business needs of clients. Responsible for the delivery, implementation and support of Oracle ERP Applications modules as well as the design and development of the Custom Interfaces including receivables TCA Architecture, Accounts Payable (AP), Accounts Receivable (AR), Order Management (OM), Install Base, Service Contracts and enabling Check and Invoice printing through Oracle Payables. Oversee the data conversion from the disparate systems, identify and make tuning recommendations for the performance issues related to Oracle relational database. Involved in defining the Standards for coding, error messages, performing the code reviews and ensuring the quality control of the deliverables. Participate in various practice development activities, including conducting technical screens, preparing presentations, mentoring consultants and less experienced Senior Consultants.

\$81,600/year. Mon-Fri 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Engineering (any type), Information Systems or Business Administration plus 4 years of experience in the job offered or 4 years of experience as a Senior Consultant, Consultant, Senior Systems Engineer or Programmer Analyst. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service. Related experience must include at least one year with Oracle ERP, including TCA architecture, Accounts Receivable (AR), Accounts Payable (AP), General Ledger (GL), Order Management (OM), PL/SQL, Data Warehousing and Middle Ware Technology.

Please send your resume, referencing Job Order Number WEB456503 to the: PA CareerLink, 701 Crosby Street, Suite B, Chester, PA 19013. EOE

Computers

Director of Consulting (Professional) Services

Manage and develop the Pro fessional Services Departmen or specialized software compa ny. Min. MS/or equiv. mathemat cs/computer science / 4 years project, personnel, operation mngt for orgs of more then 7 persons. 4 yrs. exp. documer mngt, digital imaging, and Mic rosoft.NET. Job site: Readsoft nc., Metairie, LA 70002 (appl staffing-us@readsoft.com).

Computer Support Specialist provide tech assist, troubleshoot, security, train'g & support in networked web enabled
business & software
(Webtrends, Livestat) us'g VB,
HTML, ASP, VB & Java Script &
Cold Fusion. Investigate &
resolve user's soft/hardwareprobs. Answer inquiries re &
assist Wapplics, print'g, word
process'g, programm'g languages, e-mail & operat'g
systms. Plan, implemt & admin
info systms & back up & recovery strategies. 35 hrs. 2 yrs coll
(Info Tech) + 2 yrs exp in job offd
redd. Fax resume & salary
reqmts to (703) 952-0244, Attn:
H.R, Reimers Systs.

IT PROFESSIONALS

(Glen Mills, Pennsylvania and other locations through the U.S.). Involved in the analysis, development and implementation of systems, or business processes by utilizing technical expertise and knowledge of public sector industry as well as state and federal regulations, including the design of enterprise level Health and Human Services Systems. Utilize large sys ems development lifecycle experience to build and implement 3-tie client/ server application systems. Perform needs assessment and fit/ga client/server application systems. Perform needs assessment and hydroanalysis between client requirements and existing functionality, and create technical documentation. Create detailed system design specifications for program objects, and system / technical requirements (business processes, infrastructure, interfaces, reports, enhancements, and/or conversion). Develop 3-tier client/server application systems using Powerbuilder, Visual Basic and Visual Basic Script with Oracle or DB2 basic and Create test data and write that perfect and services Design. back-end. Create test data and write test scripts and scenarios. Design develop, test and implement interfaces between multiple enterprise leve systems. Perform data conversion from legacy to enterprise systems Create design specifications for conversion programs, develop and tes conversion programs and scripts and assist in manual conversion. Create large-scale transactional processing systems utilizing relational database es for data storage.

Salary \$75,000 per year. Mon-Fri, 9:00 am to 5:00 pm. The position requires: Bachelor's degree or equivalent in Engineering (any), Computer Science, Math, Business Administration or Information Systems + 2 years of experience in the job offered or 2 years of experience as a Systems Analyst, Consultant Research/Graduate Assistant, Network & Web Server Admin. Related experience must include at least 1 year of consulting experience in Public Sector industry including State and Federal regulations, design of enterprise level Health and Human Services Systems; detailed system design specifications for program objects; and large systems development lifecycle; Powerbuilder; DB2; and 3-tier client/ server application development application development

Please send your resume or C.V., referencing Job Order Number WEB458827 to the: PA Careerlink, 701 Crosby Street, Suite B, Chester PA 19013-6096, EOE.

PROGRAMMER/ANALYST Werner Enterprises, Inc.

Duties: Design, program, maintain and support web-based and Geographic Information Systems (GIS) solutions using advanced object-oriented programming skills with current web technologies and knowledge of GIS layer, asset management and positional tracking technologies.

Education & Training: Bache or's degree in Computer Science, MIS or a related field.

Experience: Two (2) years experience in programming/web application development using GIS and J2EE technology. Requires working knowledge of HTML, Java, Cold Fusion MX and Flash MX.

Hours & Wages: 40 hours week; \$56,100/year.

Reference: Persons interested in this position may send correspondence to:

Christina Boyer-Hutfless Werner Enterprises, Inc. 14507 Frontier Road Omaha, NE 68145-0308

Please reference Code # KAR001.

Position is located in Omaha, Nebraska. No assistance with relocation expenses is offered by the Company. Applicant must have proof of legal authority to work in the United States.

Database Administrator: Code design and implement and Or-acle database applications in Unix and NT environment; de-Unix and NT environment; design, schedule and automate backup and recovery procedures; monitor and troubleshoot new Oracle releases; tune and optimize database performance; mentor peers in PL/SQL programming. Unix K-shell scripting and database concepts; design, build and administer. Datawarehouse, system. Ister Datawarehouse system Must have administration/development experience in Oracle datawarehouse design/adminis ration in healthcare industry PL/SQL, UNIX (Tru 64 & AIX) Oracle Portal, NT operating sys-ems and Unix shells scripts, Ja-/a Microsoft Office applications Dracle DBA Certification and BS Oracle DBA Certification and BS in Information Systems or relatived field plus 6 years exp., or MS in Information System and 4 yrs. related experience. Prevailing wage and benefits. AA/EOE. Send resume to Children's Hospital, 1600 7th Avenue S, Birmingham, Alabama 35233.

SR. PROGRAMMER/ ANALYST (WEB) Werner Enterprises, Inc.

Duties: Participate in require-ments gathering, analysis, de-sign, modification, development, implementation and testing of implementation and testing or software programming applica-tion participate in code reviews and, provide some mentoring to junior developers on techniques and processes.

Education & Training: Bache or's degree or foreign equivaler in computer science or a relate field.

Experience: Two years development experience in a corporate environment. Also requires in-depth corporate experience in Cold Fusion MX, Java Script HTML, DHTML, SQL and IIS.

Hours & Wages: 40 hours week; \$65,000.00/year.

Reference: Persons interested in this position may send correspondence to:

Christina K. Boyer-Hutfless Werner Enterprises, Inc. Post Office Box 45308 Omaha, NE 68145-0308

Please reference Code #

Position is located in Omaha, Nebraska. No assistance with relocation expenses is offered by the Company. Applicant must have proof of legal authority to work in the United States.

Computer & Information Systems Manager to analyze multiple versions of financial business software to oversee projects involving the programming, coding, and testing of the entire life cycle of ProStaff resource scheduling software to insure customized business software conforms to end users business policies and informational requirements. Uses Visual Basic, ASP, and SQL as the back end to modify, install, and support customized ProStaff software to insure proper functioning in various platforms, develops real time on-line reporting functionality for users, and insures secure access to sensitive information by end users. Requires Bachelor's Degree in Management Information Systems or Information Systems or Information Systems Management. Also requires education to include completion of coursework in Project Management, Business Policy and Business Finance. Send resumes only, no calls, to: Jeffrey L. Kupiec, Taylor Made Software,Inc., 28 E. Jackson, Ste 1501, Chicago, IL 60604.

Senior Systems Engineer/Pro-duct Specialist wanted to meet with senior mgmt. at customer sites to design solutions for cus-tomers involving company prod-ucts; provide Pre-/Post-sales tech. support for commercial & product activities; prepare tech product activities; prepare tech, responses to RFI's, RFP's & RFQ's; provide support for product mgmt. in definition of product regts. & direction & roadmap presentations to U.S. custompresentations to U.S. customers; support new business educ. & workshops; act in consulting role for select customers in relation to site configurations, product applications & services, & project reqts.; perform investigative analysis on capacity & perf.; act as an expert in all areas of software test process with common core products; provide suitable product branding & marketing presence; provide support & ing presence; provide support & direction to development, test, open issues & site; use past operational knowledge to assist current Operations in configuration issues, network specific issues based on Telecom stan-dards incl. GSM, TDMA, CDMA dards incl. GSM, TDMA, CDMA; provide assistance in emerging Telecom Packet-switched data technologies such as GPRS & 1xRTT; act as Multi-Media Messaging center (MMSC) Primary contact for the Americas region, resp. for defining product reqts.; work with standards bodies to ensure that MMS technology is successful in the U.S.; work with handset vendors to ensure that handsets are MMS capable; work with handset apps. prounat handsets are MMS capable, work with handset apps. providers on BREW, J2ME & PocketPC Phone Edition providing functionality reqts. to enable successful MMS implementation; support Operations team on tech. escalations in IP networking, Oracle 8i, LDAP, HP-UX, Informix, Ingres, Opencall, Solaris. ing, Oracle 8i, LDAP, HP-UX, Informix, Ingres, Opencall, Solaris. Must have Bach. Deg. in Comp. Sci., Elec. Eng. or related field & 3 yrs. Eng. Exper. in the Telecom sector working with customer, Signaling & IP networks, incl. exper. with GSM, TDMA, CDMA, SS7 & UNIX. Salary \$92,005/yr. Send 2 resumes to Case#200300272, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st Fl., Boston, MA 02114.

Senior Quality Assurance Engineer to test web-based business and financial applications. Develop formal test plans, document software bugs, and conduct regression tests. Develop and execute test scripts. Utilize knowledge of business and financial products and software to write products and software to write and produce test scripts. Organ-ize and implement functiona quality assurance schedule. Uquality assurance schedule. U-tilize quality assurance tools and methodologies. Generate scripts for automation with WinRunner and QTP using JavaScript and VBScript. Requires Bachelor's or equivalent in Computer Sci-ence, Engineering, Mathemat-ics, or Physics plus three (3) years experience in Job Offered OR three (3) years experience in application development. Candi-OR three (3) years experience in application development. Candidate must also possess demonstrated expertise in web development using HTML, JavaScript and C++ including development of Oracle database interface with webserver; demonstrated expertise in Project Management, including QA life-cycle, test plan development and scheduling, and automating test scripts using WinRunner and scheduling, and automating test scripts using WinRunner and OTP; and demonstrated expertise in testing Secure Server Authentication and Authorization Systems for online financial transaction processing systems Salary: \$85,385/yr, M-F, 9AM-5PM. Send 2 resumes to Job Order #2004-348, P.O. Box 989, Concord, NH 03302-0989. EOE. Applicants must be workers eli-Applicants must be workers el gible to accept full-time employ ment in U.S.

imp. J2EE/Object Oriented d/zn patterns like MVC, Struts, Sing-elton Patterns. Dev. custom inelton Patterns. Dev. custom in-terfaces u/sg. Java, WDK & DFC. Create SQL Scripts, stor-ed procs. on Oracle 8i & SQL Server 7.0. Create XSL styles-heets & perf. XML transformns, Utilize IDEs like Visual Age 3.5/ 4.0. Visual Café 3.1, JBuilder-3.0, Front Page 2000, Dream-weaver 5.0, ColdFusion, Allaire Home Site 4.5.1. Web develop-ment using Java. JSP. Servlets ACLE/SQL SERVER, and Java ACLE/SQL SERVER, and Java-Script. BS in Electronics or Electrical Eng + 2 yrs. exp in duties. Apply: BCA- Code PS, 2002 Perimeter Summit Blvd, #880, Atlanta, GA 30319 w/proof of perm.w/k authzn. Silicon Laboratories Inc. is hiring for the following positions: RF Mixed-Signal Design Engr Design RF ICs for cons wireless commun. equit from design capture & layout to testing & eval. of prototype. Min. req: MSEE or BSEE + 5 yrs exp in integrated circuit dev. Circuit Design Engr - Design analog & digital circuits for data conversion & commun. apps. Min req: MSEE or BSEE + 5 yrs exp in integrated circuit dev. Openings in Austin, TX and Nashua, NH. Complete job descriptions a www.silabs.com/careers. Send resume to jobs_er@silabs.com or HR Dept. 4635 Boston Lane Austin, TX 78735. NO IN PER SON APPLICATION.

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Create custom Java methods or Documentum eContent Server build applns w/ WDK. Documen-

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Programmer Analyst

Analyze, architect, develop, inte Analyze, architect, develop, inte-grate SAP Enterprise Portal, BSP, PC-UI, SAP E-Selling and E-Service using Java, JSP, AB-AP, Netweaver, VB.NET, XML, Web Services, Rational Rose, J2EE, and EAI technologies using database in Oracle and SQL Server. Req. Bachelor's in Computer Science or Engg. or related field and 2 yrs of exp. Send Resume to: HR. Indus Valley Software Consulting, Inc. 3333 Warrenville Rd., Suite 200, chicago@ivsconsulting.com

for Linux based system Analyze, design & integrate net work/internet/ VoIP protocol and services such as ATM 10/100 Ethernet, TCP/IP, IpSec DNS, Wireless-Lan. Solve net work-related problems. Super-vise technical projects. Min. Req. BA Engineering + 6 yrs exp.(M-F 40hrs/wk) Fax resume to: Artech Information Systems, 60B Columbia Rd., Morristown, N J 07960 Att: P. Maggon (973)

Senior Network Engineer, Job Site: Raleigh, NC. Analyze, design & develop advanced routing and VolP development



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Information Analyst II: Develop, implement & mainain web-based Info Center using Oracle technologies maintain Oracle database design web pages & developmethods of info delivery using SQL, PL/SQL, HTML, Java Script, Oracle 9iAS; migrate Cobol programs to Oracle Portal. Req BS in CS or related plus 1 yr work exp. Send resume to ACS, Kennesaw State Univ. 1000 Chastain Rd., Kennesaw, GA 30144. Ref NT

Corpus, Inc. has multiple openings for IT professionals to design and develop applications using Oracle, SAP, SQL, PL/SQL, COBQL, C/C++, VB, Java, XML, ERP, ASP, NT, XSL. Min BS/MS with exp. Travel maybe required. Please send resumes to resumes@corpusinc.com.

Meridian Technologies looks for IT professionals for various positions in the area of Oracle, SAP, SQL, Java, Web applications, Unix, etc. Candidates must have BS/MS or equivalent with some IT experience. Travel required for some positions. Please contact jobs@meridiantech.net. EOE.

Corp. IT Specialist - R & D for restaurant industry. Analyze software requirements to determine feasibility of design. Dev. & direct software system testing, programming, & documentation. Purch., maintain & upgradecorp. network & related equip. Dev. training manuals & train emp. on the use of the systems. Knowledge of Positouch, Panasonic, Maitre'D, Parmicro, & Novell Networking. (may be gained during ed. background or through work exp). Must have MCS. & 5 yrs. work exp. in job offered or 5 yrs of exp. as an instructor of Comp.Sc. Submit resume to LM Restaurants, Inc., 2721 McNeil St., Raleigh, NC 27608.

Graphic Designer: Design and code interactive multimedia programs and websites for trade shows, educational and marketing programs. Render 3D models for various projects using computer soft wares and free hand sketching. Design print layouts and packages. Req. Bachelor degree or Equivalent in Graphic Design or Architecture with nine months experience in job offered. Must be proficient in Adobe Illustrator, Photoshop, 3D MAX, JavaScript, Director and Flash ActionScript. 40 hour/wk, 9-5. Send resume and portfolio sample (non-returnable) to Shaw Science Partners at 4151 Ashford Dunwoody Rd, Suite 502, Atlanta, GA 30319.

Systems Admin to work at various unspecified locations with the foll skills & technologies: Sun Solaris, Cluster/Volume Veritas Manager, Weblogic, Firewall, VPN & Clearcase. Bach or equiv in Comp Sc & 2 years exp. Sandlenet, Inc., 43288 Starr Street, #1 Fremont, CA 94539, fax 510-291-2221. e-mail jobs@sandlenet.com

Developer wanted. Must have Developer wanted. Must have Bach. deg. in Comp. Sci., Math, Physics or related field & 3 yrs. middleware, integration & web technology exper. includ. exper. with IBM WebSphere Application Server & IBM WebSphere MO & 1 yr. exper. providing tech. support to customers in the energy port to customers in the energy &/or utilities industries. (Exper can be concurrent). Send cove letter and resume to Corporate Recruiting, Code EUAF, LogicaCMG, 32 Hartwell Ave., Lexington, MA 02421. No third parties or phone calls please. LogicaCMG is an EEO, M/F/V

Fast Enterprises, LLC is seeking a Senior Systems Analyst to plan, design and direct system transition to COTS solution for revenue agencies throughout the U.S. Interested, degreed, experienced professionals please respond to:

Senior Systems Analyst Recruiting L. Forest 800 Park Boulevard Suite 720 Boise, ID 83712

Programmer-Analyst: Write program specifications, using JD Edwards World, JD Edwards One-World, JDE OneWorld CNC Administration, RPG/400. AS/400 Administration, CLP JDE Case tools to develop electronic commerce internet; im plement Version Control Mar agement; formulate plan outlin ing steps, using structured analysis and design. Req 4 yrs of work exp in related field Send resume to Moorecroft Systems, Inc. 202 Abbey Court Alpharetta, GA 30004. Ref KY

rammers, Software Engineers needed-mult openings in locations throughout the US with at least on year exp in any of the following:

• C or C++, UNIX

• Perl, Oracle, UNIX

• QA Analyst

• Oracle Developer

• Java Developer

• Visual Basic, ASP, SOL Server. Oracle Financials Oracle Financials
 PeopleSoft
 Unix or NT Administrator
Unified Business Technologies,
Inc. ATTN: Human Resources
41400 Dequindre Road, Suite
105Sterling Heights, MI 48314 An
Equal Opportunity Employer

Programmer Analysts, Database Administrators, Engineering Prog-rammers, Software Engineers

Programmer Analysts/Database Administrators needed. Seeking qual, candidates possessing BS or equiv. and/or rel. work exp Duties include: develop & imple ment physical database desigi create database objects, busi ness rules & database author rization. Work w/ PL/SOL Pro*C, Oracle, ETL, ClearCase COGNOS. Fwd. resume & ref to Software Galaxy Systems LLC, 4390 US Route 1N, Suite 210, Princeton, NJ 08540.

Computer Programmer Analysts multiple openings at various ocations): Livonia, MI with fol

 Filenet IDM Desktop, IDM Web, Capture, Visual Workflo, IDMIS, IDMDS, ASP, Java IDMIS, IDMDS, ASP, Java Script, MS SQL, & Oracle on Windows & Novel Networks.

• AllFusion Data Modeler, Rational Rose, Oracle, Ascential Datastage, Informatica, Business Objects, Crystal Reports, Sun Solaris, Unix, Windows NT, Oracle PL/SQL, Pro*C, & Designer 2000 2000.

Req: Bach degree in Math, Sci/Comp Sci/Engg/Electronics, MIS/Comm/Bus, Mgt/ Admin or MIS/Comm/Bus. Mgt/ Admin or foreign equiv & 2yrs exp in technologies & job duties. Will also accept 2 yrs college education & 3 yrs exp or any suitable combination of education, experience and/or training that meets minimum requirements. Travel and/or relocation possible.

Respond by resume to: HR, Datamatics Technologies Inc., 31557 Schoolcraft Road # 100, Livonia, MI 48150-1822, OR by Fax #: 734-525-3734.

Computer Systems Analyst L'Oreal USA is seeking Systems Analyst for New York City location to design, develop test, implement and maintain web-enable business applica tions supporting retail produc placement management soft ware platforms (Intactix Space Planning Plus and Intaction
Knowledge Base); using C# Java and Microsoft ASP.NET programming as well as MS SQL and Oracle relational data base design and developmen skills; and use knowledge and understanding of relational man aged reporting, multi-dimension al database modeling, use interface and reporting principl within Cognos Busines Intelligence tool suite to design report formats and generat analysis cubes. Positio analysis cubes. Position requires a BS in Compute Engineering, (including Cogno Business Intelligence tools, C#, Java and ASP.NET). Please fax resume and cover letter with Business Inte salary history/requirements to Human Resources (212) 984

Prog/Analysts to analyze, design software appls using Java JSP, Servlets, XML, ASP, Visua Basic, EJB, JavaScript, HTML DHTML under Windows, UNIX OSs; design APIs for backup recovery framework; provide on site maintenance support such as debugging, modifica-tions, fine tuning & code opti-mization. Require: BS or foreign equiv. in CS/Engg.(any branch & 2 yrs of exp. in IT. F/T. competitive salary. Travel involved Resumes to: HR, Semafor Tech-nologies, Inc., 3300, Holcomb Bridge Road, Ste212, Norcross

Technical Lead: (with Bachelors degree and 3 years experience), West Chester OH. Job entails and requires experience in design and development of applications using 118 Apache, Weblogic, SunOne Directory Server, Site-Minder Policy, SiteMinder Web Agent, Windows 2003, and Solaris Attractive Compensation package Send Resume to Madeline Rossero, 65 Water Street Norwalk, CT 06854

Educational Software Develope

Description: Develop and maintain web based software configuration survey application for Workforce Timekeeper and HRMS Products. Develop new releases and maintain existing release of application for creating simulations and tutorials of Company software applications. Develop installation scripts to install on Windows clients. Maintain registration application for tain registration application fo Educational Services web based Educational Services web based student registration system. Support system on internal and external web sites. Maintain Company Educational Services learning paths applications. Pro-vide reporting for application as

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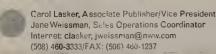
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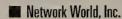


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IBM Tivoli digs deeper into app transactions

BY DENISE DUBIE

IBM Tivoli last week announced it has upgraded its application performance management software to more accurately identify network troubles and speed problem resolution.

IBM Tivoli Monitoring for Transaction Performance (TMTP) 5.3 monitors application traffic as it flows through a network to provide detailed response time information on application transactions. The product uses server and agent software installed across an infrastructure on Web, application and database servers, as well as on end-user clients, to determine application response times. The software collects the data, correlates it, compares it against preset desired response times, and alerts staff when transaction thresholds are missed.

The new version includes more application, server and standards support that let the software provide specific information to help customers optimize application performance, the company says. For example, with this release, IBM Tivoli announced integration with Siebel Server 7.7, which provides TMTP software with Siebel instrumentation specifics, such as how the Siebel server should be configured or how it should communicate with applications. That information could be

used by TMTP to pinpoint an error's cause. Rather than IT managers looking through logs from multiple systems to find the cause of poor response time, the software would point out that the problem was caused by a configuration error on the Siebel server.

"The more information software can collect across the infrastructure and from specific applications, the more likely it can automate problem detection and in some cases, resolution," says Audrey Rasmussen, a vice president at Enterprise Management Associates.

In addition to Siebel integration, the company added support for more infrastructure components, such as Web services, Web servers, IBM Customer Information Control System (CICS), IBM IMS (a database and transaction management system), IBM DB2 and SAP backend services. TMTP also uses the The Open Group's standard, which lets the software collect transaction response time data directly from applications, servers and network devices. The more data the software can collect, the better, industry experts say.

"IBM realizes customers need to be able to measure how systems use applications and how well transactions perform across the infrastructure to enable autonomic and

utility computing," says Corey Ferengul, a vice president at Meta Group. This release of TMTP is a step in that direction, he says, because in order to automate fixes along the lines of IBM's plans to develop self-healing systems, the software first must understand how applications communicate with infrastructure components on a transac-

Yet IBM Tivoli will have to continue to add application-specific support, as well as more platform support to win customers' dollars from competing vendors such as BMC, Mercury Interactive and Wily Technology.

"Products that measure application performance need to do more than collect data from the infrastructure: They need to show where performance falls down," Rasmussen says.

TMTP 5.3 starts at \$6,200 and is based on the number of systems monitored.

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SSL

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an API to which vendors specializing in securing remote-access endpoints can write their software, says Robert Whiteley, an analyst at Forrester Research. Aventail already offers endpoint security via partners. "Integrating their own endpoint security software gives Aventail a leg up,"

Aventail is further simplifying this authorization process with new graphical administrative tools that create groups of users and sets of resources that can be



ServGate's EdgeForce M30 security devices uses Dell hardware.

associated with each other so a given group can be granted access to one or many sets of resources.

Before, these groups had to be set manually increasing the likelihood of error. "It was basically a giant access control list nightmare," Whiteley says. "You had a lot of options of what you were going to do with every user."

ASAP 8.0 software comes standard with Aventail EX 750 and EX 1500 appliances.

Meanwhile, SSL vendor Array Networks next week is expected to announce two remote-access appliances for enterprise

customers called SPX 2000 and SPX 3000, which are smaller versions of the company's SP service provider gear. The appliances support up to 800 and 2,200 simultaneous users, respectively. The SP supports up to 64,000. Multiple SPXs can be connected to boost the number of remote users they support, the company

First Data, a credit and ATM card verification company in Denver, is considering the gear. The company uses Array products for its customers accessing First Data Web servers, but plans to give its employees SSL access to corporate data, says Stuart Spin-

> ner, the company's director of information security.

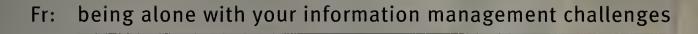
SPX 2000 costs \$10,000 with one user license. SPX 3000 costs \$20,000 with one license. Extra licenses cost more. A 500-user license costs \$15,000 extra.

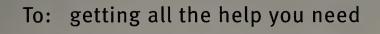
ServGate also is introducing EdgeForce M30, a multifunction security device based on ServGate software and Dell

Designed for small businesses, the device comes with a firewall, VPN support and one of three other applications: anti-virus, anti-spam or Web filtering. The M30 supports up to 35 simultaneous users and is similar to ServGate's EdgeForce appliance that is built on hardware by ServGate.

The ServGate M30 costs \$1,000 for a unit with a license for 10 simultaneous users.









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BackSpin Mark Gibbs



A letter to Messrs. Gates and Ballmer

Dear Bill and Steve,

Considering that we've never met please forgive the rather familiar greeting. I suspect the chances of actually getting a reply from either of you is pretty low, as you are very busy people and the thoughts of one columnist are hardly likely to

rock your world.

All the same, I figure that it is worth trying because even if you don't read this some of your employees and shareholders might, and the message might filter back.

So let me start by saying that despite my many criticisms of Microsoft products and corporate behavior over the years, I have at the same time admired what the company has achieved and have said so in this column.

What prompted me to write was the news that, following the European Commission's ruling against Microsoft in March, I understand the company has created a version of Windows that doesn't bundle Windows Media Player. Apparently you chose to do that as a back-up plan should the hearings over Microsoft's request for suspension of the European Commission court's demands not go in Microsoft's favor — this way the company would be ready to roll with a product that complied with the ruling.

So after all the assertions that Windows would be crippled by the lack of a built-in media player it turns out you can create a product that works perfectly well with the Windows Media Player as an add-on. Gentlemen, this comes as no surprise to any of us with basic knowledge of operating systems.

What concerns me is that Microsoft has yet again indulged in misrepresentation.

You have, not for the first time, let yourselves behave as if the end justified the means. For Microsoft the end has been simply making money and achieving market dominance, the means being untruthfulness.

Don't you occasionally feel nagging doubts over the fact that your company distorts the truth? I know that struggling for position and advantage are essential for a growing company, but you are in a different league from most.

You are in a unique position in cultural and business history. You hold the reins of one of the most powerful forces in the evolution of human communications, as well as one of the most widely used set of thinking tools.

You are not just rich, you are wealthy. Your company has created staggering wealth and power. Despite that — or maybe because of that — your perceived corporate ethical capital is at an all-time low. You seem to be unable to say "Enough!"

You are at the point where your company, without compromising its market hegemony could become — and I know this sounds comy but stick with me on this — a moral and ethical force that has as its foundation a belief in the historical and cultural importance of Microsoft rather than in the immediate business value it currently represents.

As clichéd as that might sound, the idea of being more than just another rapacious business behemoth really matters given your place in the world. When you are untruthful about something like the Windows Media Player integration with Windows you are compromising and devaluing your genius.

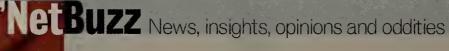
I'm not suggesting anything ridiculous such as that you should stop being competitive or give up on profits. What I am suggesting is that it is time for Microsoft to mature, to embrace the opportunity of being more than an 800-pound very rich gorilla.

I would go so far as to suggest that, should you even begin such a transformation — something that would take several years to realize — you will see greater profits and less resistance to your ideas.

Should you carry on as you are, you will have missed one of the greatest opportunities in history to make a difference to our culture.

Yours sincerely,

Mark Gibbs (backspin@gibbs.com).



By Paul McNamara

Spammers are rats? Are you one, too?

A family member? . . . No, I would not drop a dime on a relative.

Close friends are safe, too, but let's emphasize "close." Casual friends and acquaintances had better not bank on my silence — not when singing to the feds might net my bank account a cool \$250,000.

Of course, I don't know any spammers, at least not any who are out of the closet, so the exercise of ascertaining my threshold for remaining silent is purely academic. It's those of you who do know spammers — and those of you who are spammers — who need to be thinking about this question on more than a theoretical level.

Does anyone doubt this publication has a reader or two fitting the profile? I don't.

These spammers and those who know them probably sat up and took notice recently when the Federal Trade Commission (FTC) issued a report to Congress on the feasibility of instituting a bounty program to entice informants into snitching on major junk e-mailers. Consideration of such a program was part of the CAN-SPAM legislation that kicked into gear Jan. 1.

Should one be adopted, a bounty program isn't likely to save CAN-SPAM from ignominious failure. But that doesn't mean it can't be fun for all who find junk e-mail loathsome, and profitable for those few who do have the goods on a spammer. You can read the FTC report on the would-be CAN-SPAM Informant Reward System at www.nwfusion.com, DocFinder: 4041. The more interesting assessment of such programs is an accompanying paper by Marsha Ferziger Nagorsky of the University of Chicago Law School, which can be found at DocFinder: 4042.

Ferziger Nagorsky says there are three types of potential informants at the disposal of law enforcement:

The first are spam recipients; in other words, anyone with an e-mail account. Even though this group dutifully forwards 300,000 spams daily to the government's collection trough — spam@uce.gov — the diligence is useless to prosecutors.

The second group is made up of amateur cybersleuths; in other words, those with oodles of technical know-how, righteous determination and, in many cases, a need for cash born of being between jobs. (OK, that last part is my own snarky comment.) These people, too, are largely useless to prosecutors because of their limited ability to procure the quality evidence that will lead to a conviction.

The last group is insiders — accomplices, cohorts, hangers-on and busybodies — those who run in spammer circles. These people possess the "high value" info that prosecutors need and that might be worth anywhere from \$100,000 to \$250,000 of your tax dollars.

The FTC wouldn't be reinventing the wheel here. This bounty stuff is old hat to the Internal Revenue Service, which can offer up to \$2 million for dirt about tax cheats. Over the past 30 years, more than 17,000 individuals have collected \$35 million in IRS reward money, which has recouped \$2.1 billion in unpaid taxes.

So what's not to like? Well, not all such schemes are created equal. The Securities and Exchange Commission has had one on the books since 1988 but has awarded money to only three snitches. The U.S. Customs Service has one, too, but it has trouble offering big rewards for the simple reason that the agency can't legally sell much of what it confiscates.

The bottom line is Ferziger Nagorsky believes a modest, well-conceived, well-funded snitch program could land a handful of spam kingpins annually — no more. But there also might be a side benefit.

"I believe that the very existence of this bounty program . . . could provide a very real benefit: deterrence," she says.

Tips are always welcome here, although gratitude will be your only reward. The address is buzz@nww.com.

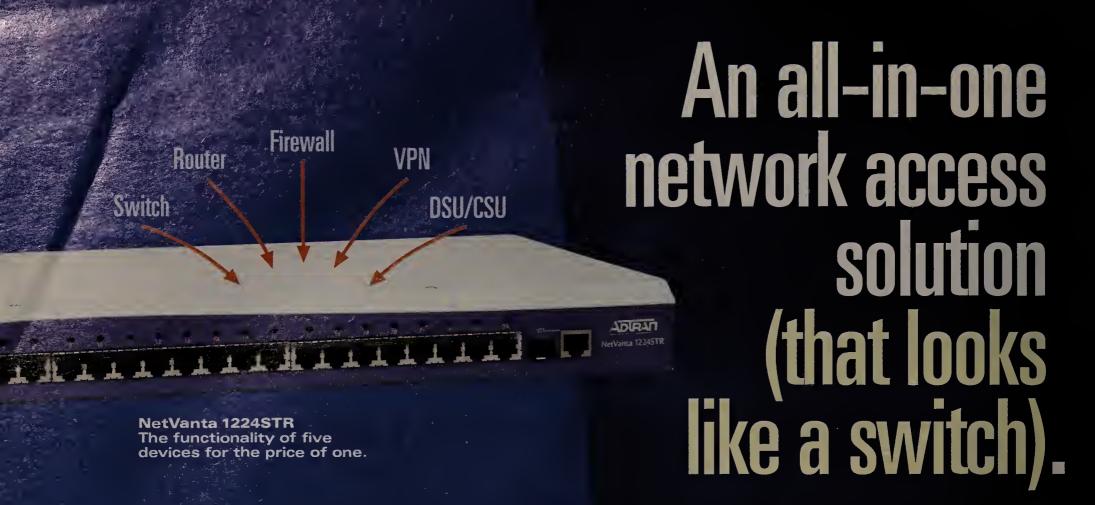


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